

Soul, Cosmos and Mathematics in Plato's *Timaeus*

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Abstract

This thesis examines the generation and immortality of soul and the cosmos according to Plato's *Timaeus* and in its early Academic reception. In doing so, it develops a new and unified interpretation of the so-called 'literalism' controversy around the *Timaeus* and its relationship to other aspects of Plato's thought. The thesis contains an introduction, six main chapters, and a conclusion. Chapter 1 compares the nature of soul's immortality in the final argument of the *Phaedo* and the *Timaeus*, arguing against a traditional view that there is no difference in kind between the two works. Chapter 2 establishes some new connections between the *Phaedo*'s account of Socrates' 'autobiography' and the *Timaeus*' approach to natural philosophy. Chapter 3 defends the full and unqualified 'literalism' of the *Timaeus*' origin-story, resolving some controversies between 'literal' and 'non-literal' interpreters which have not been satisfactorily answered before now. Chapter 4 presents a new account of the early Platonists' reaction of the *Timaeus* which is closely co-ordinated with both the *Timaeus*' account itself and the Platonists' own natural-philosophical and metaphysical views. Chapter 5 argues for a compatibilist understanding of the soul's generation in the *Timaeus*, the soul's description as *un-generated* in the *Phaedrus*, and the demonstration of soul's priority to body in the *Laws*. Chapter 6 examines the close relationship between geometry and natural philosophy across several Platonic dialogues and relates this to the early Platonists' reading of the *Timaeus*. In the Conclusion, I emphasise the significance of this thesis for the interpretation of the *Timaeus*, its relationship to other Platonic works and its reception in the early Academy.

Impact Statement

The primary impact of this thesis is its contribution to the scholarly community of philosophers and historians of science (especially cosmology and mathematics). It contributes by advancing our current knowledge of the Greek philosopher Plato, his understanding of the natural world, and his place in the history of Greek mathematics. Most of us today regard philosophy and mathematics as separate fields of study – Plato did not. Rather Plato thought that, in order to become a good philosopher, you have to learn mathematics. One reason he thought this was because, as we also think today, reality is mathematically structured. So, if philosophy is in some sense the general study of reality, then mathematics is necessary to understand reality. This thesis tries to make sense of the relationship between philosophy and mathematics by addressing a massive controversy in Plato-scholarship which has remained debated and un-resolved since the nineteenth century. In essence, the question is: did Plato really think that reality can be studied through mathematics? Plato's early admirers said Yes, whereas many modern readers of Plato, looking closely at what is written in Plato's texts, say No. I show that the correct answer is Yes, as these 'Platonists' also said, but I do so by building on, not dissenting from, the achievements of modern close-readers of Plato. My results resolve the century-old debate and allow us to understand Plato in a new light, one which is informed instead of alienated by the perspectives of his close contemporaries.

Why should it matter that for Plato philosophy is mathematical? It matters because we need more philosophers and mathematicians in society (and fewer footballers and arms-producers) and because the skills of philosophy and mathematics are closely related in ways that are not properly recognised by either discipline. Philosophy privileges conceptual distinctions, argument and clear-headedness, while mathematics prizes exactitude and refinement. Both share a power of applying high-level theoretical abstraction to practical, global and society-wide problems. But neither realises that it also requires the tools of the other in order to maximise its own potential. Philosophy needs mathematics to ground and inform its inquiries, but mathematics also needs philosophy to organise and co-ordinate its discoveries in individually and communally benefitting ways. Mathematics and philosophy are the only two purely theoretical-practical sciences, with the humanities sitting on the theoretical side of philosophy and the natural and social sciences on the practical side of

mathematics, but neither one sees its direct kinship with its neighbour. Therefore, the secondary and extra-academic impact of this thesis is to advocate the coherence of philosophy and mathematics by pointing to a time in the infancy of each discipline (in Europe and its surroundings, at least) when they illuminated and learned from one another. Recognising the symbiotic relationship which exists between philosophy and mathematics can extend the social purposefulness of each one and make their impact better felt in today's classification of academic disciplines and the world.

... ὥσπερ τῶν διαγραμμάτων ἐνίστε τοῦ πρώτου σμικροῦ καὶ ἀδήλου ψεύδους γενομένου, τὰ λοιπὰ πάμπολλα ἤδη ὄντα ἐπόμενα ὁμολογεῖν ἀλλήλοις. δεῖ δὴ περὶ τῆς ἀρχῆς παντὸς πράγματος παντὶ ἀνδρὶ τὸν πολὺν λόγον εἶναι καὶ τὴν πολλὴν σκέψιν εἶτε ὀρθῶς εἶτε μὴ ὑπόκειται: ἐκείνης δὲ ἐξετασθείσης ἱκανῶς, τὰ λοιπὰ φαίνεσθαι ἐκείνη ἐπόμενα.

... Just like geometrical propositions sometimes have a small unnoticed error at the beginning, with which all the rest which follows is perfectly coherent. That's why every individual ought to think a lot about the starting-point of any subject and investigate it thoroughly to see whether or not it's correct to posit it. If that's been satisfactorily explained, the subsequent steps will plainly follow from it.

Plato, *Cratylus* 436d

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Addendum

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Introduction

1. The subject and motivation of this thesis

This thesis examines the generation and immortality of the soul and the cosmos according to Plato's *Timaeus* and in the early Platonic Academy. In doing so, it seeks to advance our understanding of the *Timaeus*' relationship with other Platonic works and develops a new analysis of the initial 'literalism' controversy around the *Timaeus*' origin-story on the cosmos. This will in turn improve our present state of knowledge regarding the way that the *Timaeus* was read and interpreted in the early Academy.

The *Timaeus*¹ is an elaborate and ambitious work. Its central account of cosmic generation has been the subject of extensive debate and influence since the very beginning of its long history of reception. Among its many puzzles of interpretation, arguably the single most controversial issue is the question of the so-called 'literalism' of its cosmic origin-story. The controversy of the origin-story's 'literalism' can be traced back to a famous conflict of views between Aristotle and a group of Plato's early students and associates within the early Platonic Academy. According to a report from Aristotle's *On the Heavens* (*Cael.* 1.10), some early Platonists drew a comparison between the *Timaeus*' account of generation, on the one hand, and the construction of diagrams in the study of geometry, on the other hand. On the basis of this comparison, the Platonists in question are described by modern commentators as 'non-literal' interpreters of the *Timaeus*' account, in opposition to Aristotle who is viewed as a 'literal' interpreter. Moreover, the terms of this ancient conflict are generally taken to map onto a long-standing debate which has persisted throughout the modern history of the *Timaeus*' scholarship. One general motivation of this thesis is to take a fresh look at the sources on this controversy, to consider them anew in light of the *Timaeus*, and to propose a new understanding of the way that the early Platonists read and interpreted the *Timaeus* in

¹ Since this thesis will not say anything on the opening conversation of the dialogue or its dialogue-form, I tend to refer to 'the *Timaeus*' when referring properly to the *Timaeus*' central speech (27d-29d, 29d-92d).

Plato's defence. This re-construction can help to overcome the traditional scholarly deadlock between 'literal' and 'non-literal' interpreters and give rise to a more coherent picture of the *Timaeus* and its early reception than that which is on offer in most scholarship until now.

The debate around the generation (and non-destruction) of the cosmos in the *Timaeus* is closely linked to the question of Plato's understanding of the generation (and non-destruction) of the soul. Therefore, another motivation of this thesis is to examine Plato's presentation of the soul's generation and non-destruction in the *Timaeus*, comparing this with the presentation of these features in other works. According to what may be called an established scholarly view, Plato differentiated the *kind* of immortality which the soul possesses in the *Timaeus* from the kind of immortality which it is ascribed in other dialogues, such as the final argument of the *Phaedo*. Moreover, the narration of the soul's generation in the *Timaeus* is commonly thought to be incompatible with its description as 'un-generated' (*agenêton*) in the *Phaedrus*, although perhaps compatible with its presentation as prior to body in the *Laws*. These views have led many commentators to distance the *Timaeus* from other Platonic dialogues in terms of its understanding of the soul's existential nature. However, in this thesis I will argue that the *Timaeus* coheres with other Platonic works with regard to the soul's generation and immortality. Consequently, the *Timaeus* should not be regarded as an outlier among Plato's accounts of the soul, but a work that offers unique insights into psychology thanks to its cosmogonic vantage-point. This can lead to a greater appreciation of the *Timaeus* within Plato's discussions on the soul generally.

In view of these motivations, the three guiding questions which this thesis sets out to answer are the following:

- (1) Does Plato have a coherent view on the soul's generation and freedom from destruction between the *Timaeus* and other works?
- (2) How does Plato's understanding of the soul's generation and freedom from destruction relate to his understanding of the generation and freedom from destruction of the cosmos?
- (3) How and why did some early Platonists compare the *Timaeus'* account of generation to the construction of diagrams in geometry in the way that they did?

My answers to these three questions will be developed over the course of six main chapters, each of which will be dedicated, in part or in full, to the *Timaeus*' account of generation. Within the remainder of this Introduction, I will first outline some methodological considerations which will inform this thesis and then provide a summary of each chapter.

2. The *Timaeus*' relationship to other Platonic works

The *Timaeus* can be approached from a variety of critical angles. For example, it can be studied as a reflection on (and response to) the earlier tradition of Greek natural philosophy, an anticipation of Aristotle's natural-philosophical views, or as a foundation-text for the later history of ancient Platonism. Although all of these perspectives are undoubtedly fruitful², I have tended to confine my attention to the *Timaeus*' relationship with other texts within, rather than outside of, the Platonic corpus (as well as its early Academic reception). Therefore, it will be helpful to say something initially about how inquiry into this relationship ought to proceed and what it can purport to achieve. Modern commentators are often keen to draw connections between the *Timaeus* and other, earlier as well as contemporary or later, Platonic works.³ In any comparative exercise, it is important to attend closely to the particularities of each individual context and not to superimpose the views or dynamics of any one work too zealously onto another. In the case of the *Timaeus*, a particular dynamic to bear in mind is the work's affiliation to the tradition of natural philosophy (or 'inquiry concerning nature', *peri physeôs historia*, cf. *Phd.* 96a). Hence, on each occasion that we compare the *Timaeus* with another Platonic text, we should ask ourselves how far Plato is

² Recent studies which set the *Timaeus* in dialogue with earlier Greek philosophy include Menn 1995, Gregory 2000 and 2007, Sedley 2007, Bryan 2012 and Johansen 2016b, as well as the occasional comparisons with intelligent materialism in Broadie 2012. I tend to regard Johansen 2004 as illustrative of the second approach. The *Timaeus*' significance as a source-text of Platonism is well brought out in Baltes 1976, Sedley 2002 and 2021a, Dillon 2005 and Opsomer 2020.

³ I take it that the *Timaeus* is nowadays agreed to count among Plato's later, as opposed to his earlier, works, even if the relative dating of individual dialogues remains an imprecise science. See Cherniss 1957, arguing against Owen 1953.

revising an earlier-enunciated point of view (and, if so, why) and how far an apparent discrepancy can be explained by the work's natural-philosophical subject-matter. I thus agree with David N. Sedley's general advice on comparing the *Timaeus* with other dialogues:

When we do find a topic from an earlier dialogue recurring in the *Timaeus* and looking significantly different there, this is not necessarily, as often assumed, a sign that Plato has changed his mind; it is at least as likely to reflect the fact that this time it is being viewed through the lens of physics.⁴

Because of its specialist focus on natural philosophy, the *Timaeus* often presents perspectives which are either otherwise unparalleled in Plato or which look on a familiarly Platonic theme in a different light from its treatment in other places. In either case, a comparative analysis can be jointly rewarding both for the *Timaeus* and for the comparison-text. In the first scenario, the technicality and expert-knowledge which is on show in the *Timaeus* can provide insights that are not enjoyed in any other Platonic work. In the second scenario, what may at first seem bizarre and unfathomable in the *Timaeus* can be made more intelligible once one has applied the conceptual resources which are presented by another work.⁵ In both instances the *Timaeus* can become better-recognised not as an anomalous contribution to the Platonic corpus (as it sometimes used to be regarded, and may still be regarded in some quarters today) but as a characteristically *Platonic* work that is nevertheless distinguished by its natural-philosophical point of view.

Should we regard the views which are articulated by the title-character Timaeus as reflective of Plato's own? This question can be regarded as distinct but related to the question of the *Timaeus'* connectedness or separation from other Platonic dialogues, since one may

⁴ 2019: 52. By 'physics' one is to understand the entirety of natural-philosophical speculation, which includes not only what is today called physics, astronomy and cosmology but also biology and chemistry, metaphysics and epistemology, mathematics, psychology, ethics and theology.

⁵ Instances of such technicality may include the *Timaeus'* account of the cosmic soul's construction (35a-36d), the conceptualisation of the third kind (49a-52d), the geometrical account of the primary bodies' construction and the subsequent discussion of bodily properties (53b-68d), or the account of human biology (69d-88e). An impressive recent example of the second kind is Gábor Betegh's paper on the ingredients of the cosmos' soul, which draws on the discussion of sameness and difference in the *Sophist* (Betegh 2021). See also Chapter 5.2. below.

grant that the *Timaeus* contains many positive correspondences with other works but still wish to distance Plato's own viewpoint from the views that are represented by the speakers in his dialogues. One aspect which seems somehow relevance to this question is the issue of the historicity of the title-speaker Timaeus himself. Many commentators, observing that we do not possess any biographical evidence of a historical individual called Timaeus, have concluded that he is in all likelihood a Platonic invention.⁶ However, fewer commentators seem to have paused to consider what implications, if any, this ought to have on our understanding of his cosmogonic speech (including its relationship to Plato). The other three interlocutors in the dialogue – Socrates, Critias and Hermocrates – are all confirmed historical individuals who co-existed in the last quarter of the fifth century. So, if Timaeus is a fictional character, he possesses an exceptional status within the dialogue's cast as a whole. More generally, we know that it is standard Platonic practice to fill his dialogues with notable historical personalities, such as Parmenides, Protagoras and Alcibiades, even if one grants that the conversations themselves have been fictionalised to a significant extent. We hence seem to be in a position where Timaeus may be regarded as the only *named* character in a Platonic dialogue who does not correspond to a real-world figure.⁷ What consequences should this have on our approach to his origin-story? Although this question cannot be explored in full, I think that it is natural to interpret Timaeus' probable fictitious identity as lending support to the association (but not identification) of his views with those of Plato. On this assumption, Plato is preserving his 'habitual absenteeism', to borrow David N. Sedley's expression⁸, but he has even more creative freedom to develop particular natural-philosophical perspectives than in the case that his speech is delivered by a known historical figure. This kind of crafted self-articulation can still contain distancing elements – for example, Timaeus is described as

⁶ For the lack of biographical data, see Nails 2002: 293. For the assumption of fictionality, see e.g. Zeyl 2000: xxv-xxvi, Huffman 2013: 265-267 and Sedley 2019: 46-48.

⁷ I italicise 'named' in this sentence to allow for the possibility that the un-named interlocutors of later Platonic dialogues (e.g. the Eleatic and Athenian strangers) are also to a large extent fictitious. A possible exception might be Diotima in the *Symposium*, who has however been speculatively associated with Aspasia (a notable woman in later fifth-century Athenian society) by scholars since the nineteenth century. Nor do I mean to rule out the option that the personality of Timaeus may have been *inspired* by known historical individuals, such as Archytas of Tarentum, but in this case the question remains: why did Plato call him 'Timaeus' instead of 'Archytas'? Our answers to these questions will inevitably be guided by the extent to which we regard the *Timaeus*' origin-story as 'Pythagorean', which is an aspect that I largely sidestep in this thesis. For a sobering evaluation of Plato's Pythagoreanism, see Huffman 2013.

⁸ 2019: 45.

a notable citizen from southern Italy (20a), whereas Plato's family was Athenian – but these do not prevent the natural philosophy of the *Timaeus* from being viewed as thoroughly Platonic as a whole.

Another reason why it is good to reflect on the Platonic allegiances of the *Timaeus* at the beginning is because, in the immediate aftermath of the *Timaeus'* completion (as well as well beyond), various ancient readers tended to identify the word of Timaeus with that of Plato. This assimilation is commonplace in Aristotle and is also wholly presumed by Plato's students and associates in the Academy, whom we can turn to next.

3. The *Timaeus'* reception in the early Academy

Another general interest in this thesis is the way that the *Timaeus* was read and interpreted in the early Platonic Academy. The nature of the *Timaeus'* early reception is heavily shaped by the debate around the so-called 'literalism' of its origin-story on the cosmos. Therefore, it seems sensible (if also somewhat unavoidable) that our broader understanding of first-generation Platonism should be strongly guided by our assessment of this issue.⁹ As I have already noted, the question of the 'literalism' of Timaeus' account is arguably the most divisive issue of all interpretive puzzles in modern *Timaeus*-scholarship. One premise which gives rise to divergent reactions in this debate is the testimonial value which we assign to the viewpoint of the early Platonists themselves, of whom the most notable are Speusippus (of Athens, ca. 410-339/338 BCE; headship from 348/347-339/338 BCE) and Xenocrates (of Chalcedon, ca. 396/395-314/313 BCE; headship from 339/338 BCE). On the one hand, modern 'non-literal' interpreters of the origin-story tend to identify themselves and their arguments with those of these early Platonists, on the assumption that these thinkers are in agreement with their own position. On the other hand, modern 'literal' interpreters tend to distance themselves from the early Platonists and concentrate squarely on the evidence of the

⁹ On the early Academy generally, see Cherniss 1944 and 1945, Dancy 1991, Baltes 1993, Dillon 2003, Watts 2007 and the collection of essays in Kalligas et al. 2020. For some recent studies of individual thinkers, see, besides the commentaries on Speusippus by Isnardi Parente 1980 and Tarán 1981 and on Xenocrates by Heinze 1965 and Isnardi Parente (rev. Dorandi) 2012, Thiel 2006, Bénatouïl-El Murr 2010, Bénatouïl 2017, and Sedley 2021a and 2021b.

Timaeus itself, whilst also sometimes expressing sympathy for Aristotle's position. Consequently, a kind of chasm has emerged between ('literal'-minded) discussions on the *Timaeus* and discussions of the way that the *Timaeus* was read in the early Academy. More particularly, whereas modern 'literal' interpreters cannot accept *how* the early Platonists are justified in interpreting the *Timaeus* as they did, modern 'non-literal' interpreters point to the fact that these thinkers were close associates of Plato and may thus be judged to have privileged access to his own opinions. This shows that the so-called 'literalism' controversy, although nominally centred on the interpretation of the *Timaeus*, is also a controversy about whether or not (and, if so, how far) the early Platonists should be regarded as accurate spokespersons for Plato.

Can we use the views of early Platonists to re-construct the views and motivations that we ascribe to Plato? This question is not always posed so frontally in many discussions of the 'literalism' of the *Timaeus'* origin-story. However, it also seems to me crucial for understanding the early Platonists' reaction to the *Timaeus'* account, and thereby establishing a clearer picture of the way in which they stood (as well as the way in which they took themselves to be standing) to Plato. In this thesis, I want to start out by adopting an open-minded attitude on the extent to which we can use the early Platonists as witnesses for understanding Plato's point of view. This open-mindedness comprises two aspects. Firstly, it entails that we should not dismiss the early Platonists' views out of hand in those contexts, such as the so-called 'literalism' debate, in which they are explicitly reported as defending and registering the views of Plato. In such instances, these thinkers must have had a motivation for attributing a position to Plato, and the principle of charity which underpins all good ancient philosophical investigation mandates that we should inquire into what that motivation was (before examining its philosophical cogency).¹⁰ In other words, we should not close our ears to the early Platonists' perspectives, also taking into account the fact that, across nearly two and a half thousand years of Platonic scholarship, these thinkers can lay claim to standing in the closest proximity to Plato. But secondly, it does not mean that we should use the Platonists' opinions to pre-judge or bias our own interpretation of Plato. We should not regard what the early Platonists thought as a substitute for the evidence which is provided by the text of the *Timaeus* itself. As modern studies have demonstrated, the thinkers

¹⁰ On charity in ancient philosophical interpretation, see Frede 1987: ix-xxvii.

within the early Academy were not un-reflecting adherents of Plato's views, but were constructively engaging with his ideas and responding to philosophical developments which were emerging within their own day.¹¹ Therefore, we should be on our guard in evaluating those instances in which the early Platonists claim to be speaking for Plato. Potentially the early Platonists can be regarded as insightful for assessing one or other aspect of the *Timaeus*, but their perspectives on Plato's intent should not be prioritised over the study of the Platonic texts themselves.

The particular way in which I want to intervene on the early Platonists' interpretation of the *Timaeus* is by situating it within the broader mathematical activity of the early Academy. Although there is much that we do not know about the history of first-generation Platonism, one thing that we can say with confidence is that there was a lot of mathematics going on. Besides the obvious interest in mathematics that is evident from the fragment-collections of Speusippus and Xenocrates, many thinkers of a more professional mathematical profile frequented the Academy in the years before and after Plato's death, engaged in co-operative research and many many notable mathematical discoveries while they were based there.¹² Moreover, ancient reports suggest that Plato played an orchestrating role in these developments. According to a famous description from the *History of the Academy*, written by the Epicurean Philodemus of Gadara sometime in the first century BCE¹³,

... during that time, the mathematical sciences were also greatly advanced, because Plato was supervising (them) (*architektonounto[s... tou P[latōnos]*) and posing problems that the mathematicians investigated with zeal. In this way, accordingly, this was the first time that issues related to the theory of ratios (*[ta] peri metrologian*) reached [the peak of their development], and the same holds for the problems related

¹¹ Myles Burnyeat notably wrote that "'Platonism' is the name of a debate... not a fixed, unvarying essence' (1987: 148). See also Dillon 2005 *passim*. The open-minded (Socratic-style) spirit of inquiry which likely characterised the early Academy is nicely captured in a scene by the comic playwright Epicrates (fr. 11 Kock, quoted in Dillon 2005: 7-8), where a group of Academics investigate the appropriate genus for the pumpkin while 'Plato, who was present, very mildly and without irritation, told them to try again to define to which genus the pumpkin belongs'.

¹² Lasserre 1987 is a most valuable collection of texts which recount the activities of various mathematicians connected to the Academy. See also Lasserre 1964, Knorr 1986: 49-99, Fowler 1999, and Karasmanis 2020.

¹³ Philodemus, *Index Academicorum*, Col. Y, ll. 2-17. Both the references and the translation are taken from the recent edition by P. Kalligas and V. Tsouna, which is printed on pp. 276ff. of Kalligas et al. 2020. For Plato's reported instruction to Eudoxus and the other mathematicians to 'save the phenomena' by hypothesising regular celestial motions, see also Simplicius, *Comm. Ar. De Caelo*, 488.18-24 and 492.31-493.05 Heiberg.

[to definition], since Eudoxus and his followers introduced changes to the old-fashioned approach [of Hippocrates]. Geometry [too] made great progress. For there were produced both the method of analysis (*hê analisis*) and the examination of the limits (of a problem) and geometry in general was much [advanced]; furthermore, in [optics] and mechanics...

This picture of the early Academy as a hive of mathematical activity is indeed supported by evidence from the Platonic dialogues themselves. For example, in the *Republic's* account of the mathematical sciences which will be assigned to the philosopher-rulers of the ideal city, Socrates says that one condition for the development of solid geometry is the presence of a director (*epistatês*), someone in charge whom the mathematicians are content to follow if they are going to make their discoveries (*Rep.* 528b-c). More generally, Plato's dialogues are full of mathematical examples and allusions, ranging from the geometrical illustrations in the *Meno* (73e-76a, 82d-85d, 86e-87b) and the discussion of incommensurability in the *Theaetetus* (147d-148b) to the significance of mathematics in the middle books of the *Republic* and the natural philosophy of the *Timaeus*.¹⁴ All this suggests that, when the early Platonists compared the *Timaeus'* origin-story to the construction of geometrical diagrams, they were not applying a foreign science to Platonism but appealing to the mathematical spirit which presided throughout the Platonic and post-Platonic Academy (and which ostensibly had its governing impulse in Plato). By situating the Platonists' reading of the *Timaeus* within this broader mathematical milieu, I hope to develop a more unified account of the relationship between the *Timaeus* and its early Academic reception.

4. Overview of Chapters

After this Introduction, Chapter 1 will compare the nature of soul's immortality in the *Timaeus* with the final argument of the *Phaedo* (102b-107c). According to a traditional view, Plato distinguished the kind of immortality which the soul possesses in the *Timaeus* from that which

¹⁴ On Plato's relationship to contemporary mathematics, see Heath 1921: 284-315, Cherniss 1951, Gaiser 1964, Burnyeat 1978 and 2000, Vlastos 1988, Mueller 1992, Pritchard 1995, Vitruc 2006, White 2006, Karasmanis 2020 and Gregory 2021.

it is ascribed near the end of the *Phaedo*. I argue, however, that the nature of soul's immortality remains un-altered between the two works by examining the modal force of Plato's alpha-privative adjectives (such as *athanatos*, *anôlethros* and *alutos*). Firstly, I will show that, in the final argument of the *Phaedo*, the adjective *athanatos* ('immortal') carries the sense of 'does not (and will never) admit death', not 'cannot admit death', as it is usually thought. Then I will analyse the last stage of the argument (*Phd.* 105e-107a), which applies this same reasoning to the adjective *anôlethros* (translating it as 'free from destruction' instead of 'indestructible'). In the second part of the chapter, I turn to the immortality and indissolubility possessed by the cosmic gods and the soul in the *Timaeus*. I will argue that, although both these things are *able* to be dissolved by the demiurge, the cosmic gods possess a partial kind of immortality and indissolubility, being living beings composed of a body bound to a soul, whereas the human soul's immortality is un-changed from its presentation in the *Phaedo*. I conclude by drawing some reflections on Platonic modality which emerge from this comparison of the two works.

Chapter 2 defends the purpose of Socrates' autobiography in the *Phaedo* (95e-102b) within his reply to Cebes' objection and its significance for the *Timaeus'* approach to natural philosophy. Commentators have often drawn comparisons between the *Timaeus* and Socrates' narration of his interest in natural philosophy as a young man (*Phd.* 96a-99d). I contend, however, that both the details of Socrates' disappointment of Anaxagoras and his own, alternative 'second voyage' anticipate the *Timaeus* in ways that have not always been correctly understood. Firstly, I argue that Socrates' disappointment with the natural-philosophical explanations given by Anaxagoras is based on the latter's non-rationalistic understanding of causality. Then, I will show that the *Timaeus* corrects this deficiency by distinguishing between primary and secondary levels of explanation. In the second half of the chapter, I will examine the method and metaphysical basis of Socrates' 'second voyage', showing that this approach is based on the formulation of accounts (*logoi*) instead of direct objects (*erga*), makes use of images (*eikones*) and involves a fundamental causal role for the Forms. Then, I will argue that this approach can be fruitfully compared to the *Timaeus'* framework for natural-philosophical analysis, in which the cosmos is regarded as an image and so accounts about it will inevitably be likely. Lastly, I will reflect on the Socratic

contribution to natural philosophy from the evidence of the *Phaedo*'s later conversation and myth.

In Chapter 3 I offer a full and unqualified defence of the 'literalism' of the *Timaeus*' account of cosmic generation. I begin by assessing the different levels at which the 'literalism' of *Timaeus*' origin-story has historically been debated and argue that this terminology is most naturally applied to denote the interpretation of features *within* *Timaeus*' account (as opposed to Plato's commitment to the existence of these features in fact). Then, I will discuss a variety of passages that have been contested by 'literal' and 'non-literal' interpreters from both *Timaeus*' account of intelligence (29d-47e) and his account of necessity (47e-69c). In the first part, I consider *Timaeus*' initial description of the pre-cosmic state of affairs, his account of the generation of time, and the status of the demiurge as the agent responsible for the cosmos' generation. In the second part, I consider *Timaeus*' introduction of the third, other kind, the main description of the pre-cosmos and the demiurge's initial intervention in the generation of the four primary bodies of fire, air, water and earth. The overall aim is to demonstrate the coherence of the *Timaeus*' origin-story as such as a whole.

Chapter 4 develops a new understanding of the apologetic view which was taken on the *Timaeus*' origin-story by the early Platonists around Xenocrates, the second head of the Academy after Plato's death. Xenocrates and the other early Platonists who were involved in this defence are traditionally described as 'non-literal' interpreters of the *Timaeus*. I argue that this label is misleading, however, once one sees the particular way in which they likened the *Timaeus*' account of generation and the construction of diagrams in the study of geometry. Commentators have historically assumed that this similarity was invoked to demonstrate the cosmos' unqualified temporal everlastingness, whereas some have likened the constituents of a geometrical figure in their comparison to the two major causal principles of intelligence and necessity within the *Timaeus*' account. Against this, I argue that their parallel relied on an appeal to the *Timaeus*' account of the generation of the primary bodies, which is characterised by a geometrical manner of narration. I also differentiate the cosmos' generation *from* time, which the early Platonists denied on the evidence of the *Timaeus*, and the cosmos' generation *in* time (meaning its generation across a number of sequential phases), which they admitted into their own natural-philosophical and metaphysical position. Finally, I argue that Aristotle's objection against the Platonists' view is based on a 'literal', not

a 'non-literal', assessment of their position and that it is valid when examined on its own terms.

Chapter 5 defends a compatibilist interpretation of three Platonic dialogues – the *Timaeus*, the *Phaedrus*, and the *Laws* – on the nature of soul's generation and its priority to body. The *Timaeus*' presentation of the soul's generation, understood 'literally', is traditionally thought to be incompatible with the *Phaedrus*' description of soul as *un-generated* (*agenêton*), although perhaps compatible with the *Laws*' demonstration of the priority of soul over body. However, I show that the three dialogues cohere with one another by a close analysis of each context. Firstly, I argue that the *Timaeus* endorses the soul's prior generation to body and that the soul is presumed to possess self-motion. Specifically, psychic self-motion is the result of the soul's constitution from Same and Different, while God's distinctive contribution is to make the soul's motion circular and so naturally disposed to intelligence by making the soul move in a naturally circular way. Secondly, in the *Phaedrus*' demonstration of soul's immortality, soul is essentially characterised as self-moving and the self-mover is assumed to be responsible for all bodily motions in the cosmos. Thirdly, also in the *Laws* soul is regarded as self-moving, but the precise relationship between the soul and self-motion is refined from its presentation in the *Phaedrus*. I conclude by showing that soul is un-generated in the *Phaedrus* insofar as its generation is not a kind of bodily motion (*kinêsis*), while self-motion is the first kind of motion generated in the cosmos' generation according to the *Timaeus*.

In Chapter 6 I demonstrate the broader Platonic origins of the Platonists' interpretation of the *Timaeus* by discussing the relationship between geometry and natural philosophy according to a range of Platonic dialogues outside the *Timaeus*. To begin with, I show how geometry is connected to the study of the cosmos' nature in the *Gorgias*, the *Euthydemus* and especially the *Republic*'s account of the mathematical sciences for the future philosopher-rulers of the ideal city. Here, Socrates criticises the contemporary study of geometry for its metaphysical and epistemological assumptions, while prescribing an approach to astronomy which employs geometry-style problems in order to investigate the mathematical profiles of the heavenly bodies' motions. A cryptic-looking description of generation in the *Laws* also parallels the *Timaeus*' account of the generation of the primary bodies. In the second part of the chapter, I show how the early Platonists responded to these

Platonic ideas in connection with their interpretation of the *Timaeus*. An intra-Academic dispute around the language of problems has its roots in the *Republic*'s discussion of geometry and astronomy. The Platonists' defence of the *Timaeus* is also linked to this debate, while at the same time adhering to the *Republic*'s prescriptions for the geometrical study of natural phenomena. The Platonists reveal Plato to have a 'realist' attitude on the cosmos' everlastingness, while perhaps inviting a kind of 'constructivism' on the *Timaeus*' account of the primary bodies' generation.

In the Conclusion, I will reflect on the major findings of this thesis and their significance for the future study of the *Timaeus*, its relationship to other Platonic works, and its interpretation in the early Academy.

1 The soul's immortality between the *Phaedo* and the *Timaeus*

1. Introduction

The immortality of soul is one of Plato's most familiar themes. However, according to what may be described as a traditional scholarly view, Plato is understood to have distinguished the *kind* of immortality which the soul possesses in the *Timaeus* from the immortality which he ascribes to it in other Platonic works. For example, A. E. Taylor wrote in his commentary on the *Timaeus* that, on the basis of the demiurge's speech to the cosmic gods, 'Timaeus does not teach *without qualification* the doctrine of the "natural immortality" of the soul' (my italics).¹ Similarly, in an article entitled 'Immortality in the *Timaeus*', Andrew S. Mason stated that, since the bonds of the soul (and so the soul itself) are described as able to be dissolved in the *Timaeus*, '[i]t is therefore wrong to suppose that Plato always thought of the rational soul as essentially immortal'.² Lastly and most systematically, in a paper entitled 'Three kinds of Platonic immortality', David N. Sedley has differentiated the 'essential' immortality which he says qualifies the soul in the final argument of the *Phaedo* from the 'conferred' immortality which is ascribed to the soul in the *Timaeus*.³ In his view, the 'essential' immortality which is assigned to the soul near the end of the *Phaedo* should rather be associated with the immortality which is possessed in the *Timaeus* by the cosmos' demiurge. As he writes (2009: 155),

Conferred immortality can exist only in a world in which there is also essential immortality, since it requires an essentially immortal being to confer it. There is therefore no reason to think of the existence of two differing conceptions of

¹ Taylor 1928: 251.

² Mason 1994: 92.

³ Sedley 2009. As he writes, conferred immortality denotes 'a kind of everlasting durability which lies not in the essence of its possessor but elsewhere. Its possessor is in principle subject to dissolution, and external factors alone guarantee that it never will be dissolved. According to the *Timaeus*, living beings that are immortal in this sense include the world itself, the world soul, the individual cosmic gods, and the rational component of the human soul' (2009: 153).

immortality as in itself representing a change of mind on Plato's part between the *Phaedo* and the *Timaeus*.

On the other hand, there can be no doubt that the two dialogues assign the human soul different kinds of immortality: between the *Phaedo* and the *Timaeus*, the soul is demoted from essential to conferred immortality.

Sedley's distinction between 'essential' and 'conferred' kinds of immortality has also been endorsed in recent years⁴, so that it may be regarded as the most modern version of what I am calling the traditional view.

In this chapter, I will argue that the traditional view is mistaken and that there is no difference in kind between the soul's immortality in the *Timaeus* and the presentation of its immortality in other works, such as (most classically) the final argument of the *Phaedo*. In order to demonstrate this, I will take a close look at the modal force of Plato's language of immortality (*athanatos*), as well as that of his language of destruction and dissolution (*anôlethros*, *alutos*). Both in the final argument of the *Phaedo* and in the *Timaeus*, the (human) soul is described as immortal (*athanatos*) (*Phd.* 105e6-7, *Tim.* 42e6-8, 43a4-6, 69c5-7).⁵ Therefore, if Plato has changed his view on the nature of the soul's immortality between the *Phaedo* and the *Timaeus*, then it appears that the modal force of the term *athanatos* has changed along with it. Specifically, supporters of the traditional view maintain that, whereas the term *athanatos* denotes the soul's *inability* to admit death in the *Phaedo*, it denotes no more than the *fact* that the soul does not admit death in the *Timaeus*. But such a shift from a modal to a non-modal force of the adjective *athanatos* seems un-motivated. Moreover, other instances of alpha-privative adjectives in the *Timaeus*, such as the language of dissolution used of the cosmos' body, the cosmic gods and the (human) soul (*Tim.* 32c2-4, 41b3, 43d7), are standardly translated with a modal force. Against this traditional view, I will argue that the term *athanatos* generally denotes not the *inability* to admit death but the fact that the item in question *does not – and will never –* admit death. In other words, I will introduce a

⁴ See, e.g., Betegh 2018: 138 n. 14, Long 2019: 56-57 and Sedley 2019: 62 n. 29.

⁵ Contrast Dorothea Frede's description of the soul as *mortal* in the *Timaeus* (1996: 37, my italics): 'Even if the soul is not literally made of "stuff", it must have extension and motion, otherwise it could not function as the self-moving motor of the visible world, its prime function in Plato's physical account of the universe. This is the reason why he stresses its nature as *mortal*, at least in principle, since it is a generated thing (37a-e). That it will never die is due to the goodness of the creator, *not to its intrinsic nature itself* (41a-b)'. Frede's distinction between intrinsic and extrinsic deathlessness looks like the same distinction as Sedley's contrast between essential and conferred immortality.

distinction between a thing X's being un-F because X is unable to admit F (meaning that it is impossible that X admits F) and because X never admits F (meaning that X is always un-F). I will also argue that this same, qualified modal force – versus the standard modal force – is operative in Plato's other alpha-privative adjectives, both in the case of the *Phaedo* and in the case of the *Timaeus*. This will enable us to recognise a continuity between the *Phaedo* and the *Timaeus* with regard to the soul's immortal nature.

The main discussion will proceed as follows. Firstly I will examine the *Phaedo*'s final argument for the immortality and freedom from destruction of soul (§2). Then I will examine the notions of immortality and indissolubility in the *Timaeus* (§3). Lastly I will draw some connections between the *Phaedo* and the *Timaeus* which follow from a coherent understanding of soul's immortality (§4).

2. The final argument of the *Phaedo* (102b-107b)

The following discussion of the final argument of the *Phaedo* will be divided into two subsections.⁶ First, I will consider the main demonstration in the argument and its relationship to the earlier discussion (102b-105b, 105c-e), concentrating on the scope of the key-term *athanatos* ('immortal'). Second, I will examine the final stage of the argument, in which Socrates infers that soul, besides being immortal, is also free from destruction (*anôlethros*) without the need for another argument (105e-107b).

(i) The scope of immortality (105c-e)

Let us begin from the main demonstration in the argument, which takes the form of a brief question-and-answer exchange between Socrates and his main interlocutor Cebes (105c9-e9):

⁶ All un-marked Stephanus references in this section are to the *Phaedo*. Translations throughout are my own, but are based on Gallop 1975 and Long-Sedley 2011.

Ἀποκρίνου δὴ, ἦ δ' ὅς, ὥ ἂν τί ἐγγένηται σώματι ζῶν ἔσται;
Ἵλι ἂν ψυχὴ, ἔφη.
Οὐκοῦν αἰεὶ τοῦτο οὕτως ἔχει;
Πῶς γὰρ οὐχί; ἦ δ' ὅς.
Ψυχὴ ἄρα ὅτι ἂν αὐτὴ κατάσχη, αἰεὶ ἥκει ἐπ' ἐκεῖνο φέρουσα ζωὴν;
Ἦκει μέντοι, ἔφη.
Πότερον δ' ἔστι τι ζωὴ ἐναντίον ἢ οὐδέν;
Ἔστιν, ἔφη.
Τί;
Θάνατος.
Οὐκοῦν ψυχὴ τὸ ἐναντίον ὥ αὐτὴ ἐπιφέρει αἰεὶ οὐ μὴ ποτε δέξηται, ὥς ἐκ τῶν
πρόσθεν ὠμολόγηται;
Καὶ μάλα σφόδρα, ἔφη ὁ Κέβης.
Τί οὖν; τὸ μὴ δεχόμενον τὴν τοῦ ἀρτίου ιδέαν τί νυνδὴ ὠνομάζομεν;
Ἀνάρτιον, ἔφη.
Τὸ δὲ δίκαιον μὴ δεχόμενον καὶ ὃ ἂν μουσικὸν μὴ δέχεται;
Ἄμουσον, ἔφη, τὸ δὲ ἄδικον.
Εἶεν· ὃ δ' ἂν θάνατον μὴ δέχεται τί καλοῦμεν;
Ἀθάνατον, ἔφη.
Οὐκοῦν ψυχὴ οὐ δέχεται θάνατον;
Οὔ.
Ἀθάνατον ἄρα ψυχὴ.
Ἀθάνατον.
Εἶεν, ἔφη· τοῦτο μὲν δὴ ἀποδεδεῖχθαι φῶμεν; ἢ πῶς δοκεῖ;
Καὶ μάλα γε ἱκανῶς, ὥ Σώκρατες.

'So answer', [Socrates] said, 'what is that which, if it inheres in body, will be alive?'
'It's soul', [Cebes] said.
'And is this always the case?'
'How could it not be?', he said.
'So, whenever soul occupies [something], does it always come bringing life to that thing?'
'It does', he said.
'Is there something which is opposite to life or not?'
'There is', he said.
'What is it?'
'Death.'
'So, would soul not ever admit the opposite thing to that which it always brings along, as it was agreed from the things earlier?'
'Yes, very much so', said Cebes.
'What is that then? What did we just name that which does not admit the form of

the even?’
 ‘Un-even.’
 ‘And what [did we just name] that which doesn’t admit just and what wouldn’t admit musical?’
 ‘Un-musical’, he said, ‘and the other *un*-just.’
 ‘Indeed. And what do we call that which would not admit death?’
 ‘Immortal (or: *un*-dying⁷)’, he said.
 ‘So, does soul admit death?’
 ‘No.’
 ‘So soul is immortal.’
 ‘It’s immortal.’
 ‘Indeed’, he said. ‘Do we say, then, that this has been demonstrated? Or how does it look [to you]?’
 ‘It’s [demonstrated] very satisfactorily, Socrates.’

Following the classic discussion of the final argument by Dorothea Frede⁸, we can summarise its formal structure as follows:

Step 1	Soul always brings life to body when it inheres in it.
Step 2	Life is opposite to death.
Inference	Soul will never admit death.
Conclusion (general)	That which doesn’t admit death is immortal.
Conclusion (specific)	Soul, since it doesn’t admit death, is immortal.

However, the scope of the key-term *athanatos* which qualifies soul is debated. In other words, the *meaning* of the word has been interpreted in various ways. In what follows, I will first consider three ways in which the argument has been analysed, before presenting my own account of how it should be understood.

⁷ The key-term *athanatos* stands in a morphological parallel to the three earlier adjectives *anartios*, *amousos* and *adikos*, since they all possess an alpha-privative prefix. So, translating *athanatos* as ‘*un*-dying’ would fit more neatly with the ‘*un*-’ prefixes that appear in the English earlier. However, I have chosen to keep the standard translation of *athanatos* as ‘immortal’ throughout, and I do not differentiate between ‘immortal’, ‘*un*-dying’ and ‘deathless’ in English.

⁸ Frede 1978. Frede’s analysis is largely retained in two further versions, Frede 1999: 134-151 and 2011.

Firstly, in a famous paper from the 1960s David Keyt wrote that the final argument of the *Phaedo* contains an example of the so-called ‘fallacy of equivocation’ concerning Socrates’ use of the word *athanatos*.⁹ In Keyt’s view, whereas the key-term *athanatos* means ‘alive’ in the main demonstration in the argument, it means ‘immortal’ in the sense of ‘indestructible’ in the final stage of the argument. Here is what Keyt says in his own words (1963: 170):

Plato now offers a definition: that which does not admit θάνατος is called ἀθάνατος (105E2-3). What does ἀθάνατος mean here? Plato tells us that θάνατος and ἀθάνατος are related as even to uneven, just to unjust, cultured to uncultured (105D13-E3). What is so related to death? Obviously, life. So here ἀθάνατος means simply ζωή. ... The last step but one of the argument consists of the statement that what is ἀθάνατος is indestructible. (This statement is finally made categorically at 106E1.) This statement is only true if ἀθάνατος now means, not ‘alive’, but ‘immortal’.

However, as several commentators have pointed out¹⁰, it cannot be correct to say that *athanatos* only means ‘alive’ in the main demonstration of the argument. This is because Socrates and Cebes agree that *athanatos* is ‘that which would not admit death’ (105e2-3, at e3). But many things are alive – such as human and non-human animals – which plainly *do* admit death. So, it does not seem right to say that *athanatos* only means ‘alive’ in the central demonstration.

What about Keyt’s second view of *athanatos* meaning ‘immortal’ in the sense of ‘indestructible’? One commentator who agrees that this sense of *athanatos* is operative in the final argument is David Bostock, within his book-length study on the *Phaedo*.¹¹ Bostock makes the following comments on the conclusion reached by Socrates by the end of the main demonstration (1986: 190, original italics):

Our premiss states that being alive is an essential property of souls, which is to say that a soul must always be alive *so long as it exists*. But it does not follow that souls always do exist, just as it does not follow that snow always does remain snow. In other words, even if we grant all Plato’s premisses so far, the most we can conclude is

⁹ Keyt 1963.

¹⁰ See, e.g., Gallop 1975: 215-216, Frede 1978: 41 n. 21, and Kanayama 2000: 80-83.

¹¹ Bostock 1986, at pp. 189-193.

- (i) Souls cannot die and still exist.

From this it does *not* follow that

- (ii) Souls cannot die.

Which of these does Socrates mean when he argues at 105d13-e9 that it now follows that the soul is immortal?

When Bostock writes that the premises of the final argument only commit Socrates to the view that a soul is always alive *as long as it exists*, he has in mind passages such as the following (103d5-e5):

Ἀλλὰ τόδε γ' οἶμαι δοκεῖ σοι, οὐδέποτε χιόνα γ' οὔσαν δεξαμένην τὸ θερμόν, ὥσπερ ἐν τοῖς πρόσθεν ἐλέγομεν, ἔτι ἔσσεσθαι ὅπερ ἦν, χιόνα καὶ θερμόν, ἀλλὰ προσιόντος τοῦ θερμοῦ ἢ ὑπεκχωρήσειν αὐτῷ ἢ ἀπολεῖσθαι.

Πάνυ γε.

Καὶ τὸ πῦρ γε αὖ προσιόντος τοῦ ψυχροῦ αὐτῷ ἢ ὑπεξιέναι ἢ ἀπολεῖσθαι, οὐ μέντοι ποτὲ τολμήσειν δεξάμενον τὴν ψυχρότητα ἔτι εἶναι ὅπερ ἦν, πῦρ καὶ ψυχρόν. Ἀληθῆ, ἔφη, λέγεις.

Ἔστιν ἄρα, ἦ δ' ὅς, περὶ ἔνια τῶν τοιούτων, ὥστε μὴ μόνον αὐτὸ τὸ εἶδος ἀξιοῦσθαι τοῦ αὐτοῦ ὀνόματος εἰς τὸν αἰὶ χρόνον, ἀλλὰ καὶ ἄλλο τι ὃ ἔστι μὲν οὐκ ἐκεῖνο, ἔχει δὲ τὴν ἐκείνου μορφήν αἰεὶ, ὅτανπερ ἦ.

‘But I think this seems [good] to you, that snow, while it exists, will never admit the hot, just as we say in what came earlier, and still be what it was, snow and hot, but, when the hot advances, it will either get out of the way of it or be destroyed.’

‘Absolutely so.’

‘And the fire in turn, when the cold advances, will either get out of the way of it or be destroyed, but it will never dare to receive the coldness¹² and still be what it was, fire and cold.’

‘You speak truly’, [Cebes] said.

‘So it is’, [Socrates] said, ‘in the case of some of the things of this sort, that not only the form itself is worthy of its own name for everlasting time, but also something else

¹² The move from ‘the cold’ (*to psuchron*) to ‘coldness’ (*hē psuchrotēs*) in this sentence shows that Socrates does not envision a meaningful difference between these two formulations.

which is not that thing, but which always has the appearance of that thing, whenever it exists.¹³

Here, Socrates explains that snow will never become hot – by ‘admitting the hot’ – and still be what it was, i.e. snow, so as to be both ‘snow and hot’. In the same way, fire will never become cold by admitting the cold and still be what it was, i.e. fire, so as to be both ‘fire and cold’. Now, as commentators on the final argument generally agree, Socrates is drawing a basic parallel between fire and hot, snow and cold, and countable groups and their quantity, on the one hand, and soul and immortality, on the other hand.¹⁴ Therefore, just as snow will never admit the hot and still be snow, such that you have hot snow, so too soul will never admit death and still be soul, such that you have dead (or mortal) soul. Bostock thus seems correct to say that, on the basis of the earlier discussion, Socrates has only shown that soul is immortal *for as long as (or whenever) it exists* by the end of the central demonstration of the argument.

However, Bostock thinks that, even though the premises of the argument only commit Socrates to the view that soul is immortal for as long as it exists, nevertheless Plato is using the key-term *athanatos* throughout the argument to denote that the soul ‘cannot die’. He also maintains that this scope corresponds to the usual meaning of the word. Bostock thus finds a way to avoid charging Socrates with equivocation on his use of the word *athanatos*, as Keyt had done, since *athanatos* is now taken to denote the soul’s inability to admit death throughout the entire final argument. But, as Bostock himself admits, this understanding comes at a significant cost. This is because, if Socrates is taken to have already demonstrated that soul is unable to admit death by the end of the central demonstration, there seems to be no argumentative force for the final stage of the argument, in which Socrates goes on to

¹³ See also 104c1-3 (using an example of a group of three things): ‘Or will we not say that the three things (*ta tria*) will be destroyed earlier and suffer anything at all, before they hold their ground and become even, while still being three (*eti tria onta*)?’.

¹⁴ This parallelism is clearly evidenced by the final stage of the argument, in which Socrates re-introduces the examples of fire, snow and the group of three things (105e-106c, quoted below). However, strictly speaking the target case of the soul does not stand in an *exact* parallel to the cases of fire, snow and countable groups. This is because, in the case of the soul, there is a notion at play of *inherence in a body* (cf. 105c8-10), which does not feature in the original examples. This notion is prepared for by the three further examples which Socrates briefly gives at the end of his reply to Cebes immediately before the main demonstration, which feature fire and hotness, sickness and inflammation, and evenness and one-ness / the monad (105b5-c6, at b8-c6). For excellent discussion of this passage, see Prince 2012: 21-24.

show that, in addition to its being immortal (*athanatos*), soul is also, in Bostock's words, 'imperishable' (*anôlethros*). Bostock therefore concludes that Plato has failed to see that further argumentation is genuinely necessary, in order to show not only that soul is immortal for the duration of its existence but that it actually *does* exist indefinitely. He ends his discussion on a disappointed note: 'Taking it for granted that the word [viz. *athanatos*] is being used in its usual sense [viz. 'cannot die'], he thinks it must obviously follow that the soul exists forever. And I am afraid that this is simply a mistake which we can do nothing to put right.'¹⁵

A third and alternative analysis of the *Phaedo*'s final argument – which seems partly formulated to escape from Bostock's sense of disappointment – has been developed in more recent years by David N. Sedley.¹⁶ Sedley distinguishes between two stages of the argument, which he labels as 'Stage 1' and 'Stage 2', and which correspond to what I have been calling the central demonstration of the argument (105c7-e10) and its final stage (105e11-107a1). Since I am here focussed only on the central demonstration of the argument, I will examine Sedley's interpretation of this stage here, postponing an analysis of his interpretation of the second stage for the second sub-section below. Sedley also considers the possibility that, by the end of the central demonstration, Socrates has only shown that soul is immortal *for as long as it exists*, as Bostock had also considered. However, significantly he rejects the idea that this plays any functional role in the final argument as a whole. Sedley introduces his objection against this idea by quoting a report of Strato of Lampsacus, the second head of Aristotle's Lyceum after the death of Theophrastus, who is supposed to have endorsed it¹⁷:

Just as fire is not cooled for as long as it exists, so too soul is immortal for as long as it exists.

He then objects that the qualification that the soul's immortality is limited to the period of its existence only stands if we assume that the soul must be in a state of existence if it is to be

¹⁵ 1986: 192.

¹⁶ See Sedley 2009: 146-153 and 2018.

¹⁷ See Damascius, *In Phd.* 1.442, quoted in Sedley 2009: 150 and 2018: 218. Strato's criticisms are helpfully collected in Hackforth 1972: 195-198.

described as 'dead'. But, he contends, it is not a necessary condition for an entity to exist, such as Plato or Plato's soul, if it is to be called (or, to use Sedley's linguistic terminology, if it is to bear the predicate) 'dead'. As he writes (2009: 151):

Even non-existent subjects are obliged to obey the laws of logic. The proposition that James Bond is a married bachelor remains equally self-contradictory whether or not he exists.¹⁸

Sedley thus deduces that the objection that soul has only been shown to be immortal for the duration of its existence, although technically derivable from the earlier discussion, nevertheless does not apply to the *Phaedo's* final argument. He also maintains that the immortality of soul consists in the fact that soul is *unable* to admit death at any costs.¹⁹ On this basis, Sedley concludes that the final argument presents the idea of the death of soul as a *logical or metaphysical impossibility*, meaning that it is impossible for the soul to admit the predicate 'dead'.

Let me now advance to present my own understanding of the central demonstration. As I have already indicated, my interpretation is based on an analysis of the modal premises which are at play within the argument. Generally speaking, commentators on the final argument have assumed that the key-term *athanatos* denotes the *inability* (or *incapacity*) for the soul to admit death (and so die).²⁰ In other words, they think that, when Socrates concludes that soul is immortal at the end of the central demonstration, he is concluding that it is *impossible* for the soul to admit death. However, I do not think that the key-term *athanatos* possesses this standard modal force in the argument. To show this, let us look at the concluding steps of the argument again:

¹⁸ Cf. 2018: 219. In a footnote to this sentence, Sedley adds (2009: 151 n. 8 = 2018: 219 n. 20): 'Significantly, although the essential bearer of F-ness is said by Socrates to be itself F "so long as it exists" or "whenever it exists" (103e5), his principles nowhere limit its inability to be un-F to the time when it exists.'

¹⁹ See, e.g., 2009: 147 = 2018: 211 ('Being thus *incapable* of becoming dead, soul is immortal') and his 'principle 7' which is derived from the earlier discussion: 'x is properly called 'G-less' = *incapable* of G-ness' (2018: 214, my italics).

²⁰ See, e.g., Frede 1978: 29, 1999: 139 and 2011: 151, Gallop 1975: 217, Bostock 1986: 189-190, Rowe 1993: 261, Denyer 2007: 95, Sedley 2009: 147 and 2018: 210.

‘Indeed. And what do we call that which would not admit death (ὃ δ’ ἂν θάνατον μὴ δέχεται)?’

‘Immortal (or: *un*-dying)’, he said.

‘So, does soul admit death (Οὐκοῦν ψυχὴ οὐ δέχεται θάνατον)?’

‘No.’

‘So soul is immortal.’

‘It’s immortal.’

The use of the subjunctive + *an* followed by the indicative mood here shows that Socrates is not concluding that soul is *unable* to admit death, but simply that soul *does not* admit death, and for this reason it is immortal (*athanatos*). Moreover, in referring back to the earlier discussion at 105d10-12, Socrates said that, since soul *always* (*aei*) comes bringing life to that which it inheres in, then it will *never* (*ou pote*) admit the opposite thing to that which it brings along, namely death.²¹ Since ‘always’ and ‘never’ are also modal terms, it would not be correct to say that the central demonstration does not possess any modal valency whatsoever. The point is just that the modal force of the central demonstration is qualified. The central demonstration thus concludes that soul does not – *and will never* – admit death, but it does not conclude that that soul is *unable* to admit death, as it is usually thought. For there is a margin of difference between something’s never being X (meaning that it is always not-X) and something’s being unable to be X (meaning that it is impossible that it is X).

This realisation can help us to clarify the debated issue whether or not the earlier discussion commits Socrates to the view that soul does not (ever) admit death unqualifiedly or that it does not (ever) admit death *as long as it exists* by the end of the central demonstration. Specifically, it can be used to show that the earlier premises *do* play a functional role in the central demonstration and the final argument as a whole. I thus agree with Sedley’s general analysis of the logical dimension of the argument, but I disagree with his verdict that the existence-qualifiers in the cases of fire, snow and countable groups do not contribute to the argumentation at all. More critically, it is only by accepting that the earlier premises are *actually* operative in the central demonstration that we can ascribe a purpose

²¹ See also the use of ‘always’ and ‘never’ in Socrates’ discussion of the original examples: *oudepote* (103d5), *ou mentoi pote* (103d11), *aei* (103e5). Significantly, there is no mention here of the language of ability or possibility.

to the final stage of the argument, in which Socrates goes on to say that, in addition to being immortal (*athanatos*), soul will not admit destruction in any way. Let us therefore advance to consider this final stage of the argument in detail.

(ii) The nature of indestructibility (105e-107b)

In the last stage of the final argument, Socrates shows that, besides being immortal (*athanatos*), soul is also free from destruction (*anôlethros*). This part of the argument has frequently been criticised by commentators who have struggled to understand how the reasoning is supposed to work. For example, many – such as Bostock, whose views were quoted above – have accused Plato of begging the question here, i.e. of simply assuming what it is he wishes to prove.²² An original attempt to overcome this confusion has been offered by David N. Sedley. Sedley ascribes the following purpose to the final stage of the argument (2009: 149 = 2018: 217, original italics):

No, the motive for adding Stage 2 of the argument (105e11-107a1) has nothing to do with proving the soul immortal. That has already been accomplished in Stage 1. The purpose of Stage 2... is to establish the further vital conclusion that the soul, when death approaches, must ‘retreat’, that is *leave the body and go to Hades*.

Sedley assigns what might be described as an ‘eschatological’ motivation to the final stage of the argument. The effect of this is to transfer all of the probative weight for the final argument to the central demonstration, which, as we have seen, Sedley takes to show that the soul is unable to admit death in any way. However, there are two problems with this approach (besides the mistaken diagnosis of the modal force of the key-term *athanatos*). The first is that the overall purpose of the final argument is to show not just that soul is immortal (*athanatos*) but also that it is free from destruction (*anôlethros*), so that Cebes can approach

²² For various discussions, see Gallop 1975: 216-222, Frede 1978: 30-32, 140-146, 2011: 152-154, Bostock 1986: 191-192, Kanayama 2000: 83-85, Dixsaut 2001, Dorter 2001, Ebert 2004: 397-408 and Pakaluk 2010.

death without the fear that his soul will be destroyed (87a-88b, 95b-e).²³ Therefore, contrary to Sedley's analysis, the additional demonstration of the soul's freedom from destruction is a necessary and integral part of the final argument as a whole. The second is that there is no reference to the soul's departure from the body and passage to Hades within the main section of the final stage of the argument. Only at the end of the ensuing discussion does Socrates state that 'so, more than anything, Cebes, soul is immortal and free from destruction, *and in reality (kai tōi ontī)* our souls will be in Hades' (106e8-107a1). This suggests that the soul's post-mortem existence in Hades is not something which is logically inferred from the preceding exchange but is being introduced here for the first time now that the soul has been shown to be immortal and free from destruction. We should thus look for a more convincing purpose than Sedley's 'eschatological' explanation for the final stage of the argument.

To do this, I begin by re-assessing the scope of the new key-term *anôlethros* (which is first mentioned in the final argument at 106a1). Commentators have historically translated this term into English as 'indestructible' or 'imperishable' (or a synonym thereof).²⁴ This rendition clearly indicates that the soul is *unable* to admit destruction in any way. However, as we have seen, the key-term *athanatos* as it appears in the central demonstration denotes not the soul's inability to admit death, but the fact that the soul does not – and will never – admit death. Correspondingly, we may suppose that the key-term *anôlethros* denotes not the soul's inability to admit destruction, but the fact that it does not (ever) admit destruction (in which destruction is understood to be tantamount to passing out of existence in any way). In English, we can convey this by translating *anôlethros* as '*free from destruction*', instead of 'indestructible', or perhaps by saying that the soul goes 'un-destroyed'.²⁵ Moreover, the fact that *anôlethros* possesses this qualified modal force can be amply demonstrated by the word's appearance throughout the last stage of the final argument. For example, after

²³ Cebes, in his original reply to Socrates, had feared that the soul might be worn out after multiple cycles of embodiment and eventually become destroyed, like a cloak which is worn many times and eventually passes away (87b-88b). Cf. *athanaton te kai anôlethron* (88b5-6).

²⁴ This translation is unanimous among commentators on the *Phaedo*. Cf. also 'indestructible' (Dixsaut 2001) and 'unzerstörbar' (Ebert 2004, Frede 2011).

²⁵ If I say in English that 'the house went un-destroyed in spite of the fire', I am not claiming that the house will not (ever) admit destruction, but only that it has not been destroyed until now (and this in spite of a particular historical event). Conversely, *anôlethros* understood as 'un-destroyed' implies non-destruction into an everlasting future as well as from an everlasting past. On the cosmos' everlastingness in both temporal directions in the *Timaeus*, see Chapters 3.2.2 and 4.3.

Socrates has re-introduced the original examples of a group of three things, snow and fire (105e-106a), he makes the following claim about ‘the immortal’ (106b1-3):

Οὐκοῦν καὶ ὧδε, ἔφη, ἀνάγκη περὶ τοῦ ἀθανάτου εἰπεῖν; εἰ μὲν τὸ ἀθάνατον καὶ ἀνώλεθρόν ἐστιν, ἀδύνατον ψυχῇ, ὅταν θάνατος ἐπ’ αὐτὴν ἴη, ἀπόλλυσθαι·

‘Then’, he said, ‘isn’t it necessary to speak in the same way too concerning the immortal? If the immortal is also free from destruction, it’s impossible for soul, whenever death comes against it, to be destroyed.

If the sense of *anôlethros* was ‘indestructible’ here, Socrates would need to have said that, ‘if the immortal is also *anôlethron*, it’s impossible for soul, whenever death comes against it, *to be able* to be destroyed’. As it is, though, the use of the infinitive *apollusthai* in the protasis, shows that the key-term *anôlethros* straightforwardly denotes non-destruction. Similarly, when Socrates imagines an objection which takes as its example the group of three things, he makes the following concession (106b7-c3):

Ἀλλὰ τί κωλύει, φαίη ἄν τις, ἄρτιον μὲν τὸ περιττὸν μὴ γίνεσθαι ἐπιόντος τοῦ ἀρτίου, ὥσπερ ὠμολόγηται, ἀπολομένου δὲ αὐτοῦ ἀντ’ ἐκείνου ἄρτιον γεγενέναι; τῷ ταῦτα λέγοντι οὐκ ἂν ἔχοιμεν διαμαχέσασθαι ὅτι οὐκ ἀπόλλυται· τὸ γὰρ ἀνάρτιον οὐκ ἀνώλεθρόν ἐστιν·

“‘But”, someone might say, “what prevents the odd [viz. of the group of three things] not from coming to be even when the even approaches, as has been agreed, but from being destroyed itself, and even coming to be present in place of it?” To [someone] saying these things, we wouldn’t be able to contest that [the odd] is not destroyed – for the un-even is not free from destruction.’

Here, the imagined objection only makes sense if Socrates admits that the oddness which had characterised the group of three things *is* destroyed by the approach of the even, rather than that it is merely *able* to be destroyed. This again shows that the key-term *anôlethros* throughout the discussion carries the sense of ‘free from destruction’, not ‘indestructible’.

Hence, Socrates does not conclude at the end of the *Phaedo*'s final argument that soul is unable to be destroyed, but only that it does not (ever) admit destruction, in addition to its being immortal.

How does Socrates establish the conclusion that soul is free from destruction as well as immortal? To determine this, we can first quote the crucial part of the final stage of the argument (106c9-e3):

Οὐκοῦν καὶ νῦν περὶ τοῦ ἀθανάτου, εἰ μὲν ἡμῖν ὁμολογεῖται καὶ ἀνώλεθρον εἶναι, ψυχὴ ἂν εἴη πρὸς τῷ ἀθάνατος εἶναι καὶ ἀνώλεθρος· εἰ δὲ μή, ἄλλου ἂν δέοι λόγου. Ἀλλ' οὐδὲν δεῖ, ἔφη, τούτου γε ἔνεκα· σχολῇ γὰρ ἂν τι ἄλλο φθορὰν μὴ δέχοιτο, εἰ τὸ γε ἀθάνατον αἰδιδόν ὃν φθορὰν δέξεται.

Ὅ δέ γε θεὸς οἶμαι, ἔφη ὁ Σωκράτης, καὶ αὐτὸ τὸ τῆς ζωῆς εἶδος καὶ εἴ τι ἄλλο ἀθάνατόν ἐστιν, παρὰ πάντων ἂν ὁμολογηθεῖη μηδέποτε ἀπόλλυσθαι. Παρὰ πάντων μέντοι νῆ Δί', ἔφη, ἀνθρώπων τέ γε καὶ ἔτι μᾶλλον, ὥς ἐγώ μιν, παρὰ θεῶν.

Ὅποτε δὴ τὸ ἀθάνατον καὶ ἀδιάφθορόν ἐστιν, ἄλλο τι ψυχὴ ἢ, εἰ ἀθάνατος τυγχάνει οὔσα, καὶ ἀνώλεθρος ἂν εἴη;

Πολλὴ ἀνάγκη.

'Then now too concerning the immortal', [Socrates said], 'if it's agreed by us also to be free from destruction, soul would also be free from destruction in addition to its being immortal. But if it's not [agreed], there would be need for another argument.' 'But there's no need at all', [Cebes] said, 'at least for the sake of this [argument]. For hardly anything else would fail to admit corruption, if even the immortal, being eternal, will admit corruption.'

'I think God at least', said Socrates, 'and the Form of Life itself, and if there is anything else immortal, would be agreed among everyone never to be destroyed.'

'Among everyone in the name of Zeus', [Cebes] said, 'both human beings and still further among gods, I should think.'

'Then, since the immortal is also completely free from corruption, would soul, if it really is immortal, be anything other than also free from destruction?'

'It absolutely must be [also free from destruction].'

There are two uncertain aspects of this passage which need to be clarified in order to understand how Socrates convinces Cebes that soul is free from destruction as well as immortal without the need for another argument. The first is the meaning of Socrates' reference to 'the immortal' (*to athanaton*), which picks up his use of the same expression

earlier (first at 106b1, quoted above).²⁶ The second is how exactly Cebes agrees to the view that the immortal is free from destruction because ‘the immortal, being eternal (*to ge athanaton aidion on*)’, will never admit destruction. Let us inspect each of these aspects in turn. Firstly, Socrates appears to infer that soul is free from destruction in addition to being immortal according to the following kind of reasoning:

Step 1	Soul is immortal.
Step 2	The immortal is free from destruction.
Conclusion	Therefore, soul is free from destruction.

This scheme shows that Socrates’ inference that soul is free from destruction as well as immortal is based on a *transitive* sequence of reasoning.²⁷ But what does he mean by his reference to ‘the immortal’ (*to athanaton*)? In his commentary on the *Phaedo*, David Gallop suggested that this expression can be construed in one of two ways: (i) as meaning ‘that which is immortal’, and (ii) as ‘the property of being immortal’.²⁸ My analysis is based on understanding *to athanaton* in a manner that conforms with the first of these two options.²⁹ In particular, I suggest that Socrates’ reference to ‘the immortal’ is intended to regard that which is immortal in terms of their inclusion within a specific *class or group*.³⁰ Within this class or group are included all the things in existence which are immortal. So, if Socrates is able to show that some of the things that belong to this class are free from destruction, he will be able to infer that soul, since it has already been demonstrated to be immortal, is also free from destruction. Otherwise, as he says, there will be a need for another argument.

²⁶ The first use of *to athanaton* at 106b1 itself picks up on the use of the same formula (neuter article + adjective) in the cases of the uneven, the un-hot and the un-cold (see at 105e11, 106a2, and 106a8).

²⁷ I thank Thomas K. Johansen for pointing this out to me. A transitive sequence of reasoning is understood as that which can be expressed in terms of the formula, ‘if X is Y and Y is Z, X is also Z’. For a similar transitive structure in the *Phaedrus*’ argument for soul’s immortality, see Chapter 5.3.1. below.

²⁸ Gallop 1975: 217-219, at 217.

²⁹ Several commentators have pointed out that Socrates in the final argument of the *Phaedo* does not appear to draw a sharp distinction between things in the world and the properties which are possessed by them. See, e.g., Hackforth 1972: 162, 165, Bostock 1986: 186-187, Rowe 1993: 264, and Ebert 2004: 395-397. For a recent analysis of the argument which configures properties as ‘ingredients’, see Hennig 2015.

³⁰ Cf. Pakaluk 2010: 669-675, who similarly takes the soul’s freedom from destruction to follow from its status as a member of the class of things which are immortal. Pakaluk translates the key-term *anôlethros* throughout as ‘imperishable’.

Cebes, however, at once replies to Socrates' remark by stating that there is no need for another argument, since (*gar*) 'hardly anything else would fail to admit corruption, if even the immortal, being eternal, will admit corruption' (106d2-4). This suggests that Cebes is picking up on Socrates' use of the expression *to athanaton* and applying it with the same meaning in his reply.³¹ Socrates then responds to Cebes' reply by stating in agreement that 'God, at least, ... and the Form of Life itself, and if there is anything else immortal, would be agreed by everyone never to be destroyed'. This indicates that Socrates is referring to God and the Form of Life as *examples* of the things which belong to the class that is denoted as 'the immortal'.³² Next, Cebes answers that God, the Form of Life and anything else which is immortal will be agreed by human beings as well as the gods never to be destroyed. After this Socrates repeats the question that he had posed earlier, namely that, if the immortal (*to athanaton*) is agreed to be free from corruption (*adiaphthoron*), so too soul, if it is immortal, will be nothing other than free from destruction (*anôlethros*). Cebes now accepts that this is necessarily so, and it is then established in the following lines that soul is indeed immortal and free from destruction.

This step-by-step analysis enables us to clarify the second uncertain aspect of the passage, namely how precisely Cebes agrees to the view that the immortal is free from destruction because 'the immortal, being eternal (*to ge athanaton aidion on*)', is agreed never to admit destruction. The answer seems to turn on Socrates' response to Cebes' first reply. As we have just noted, Socrates appears to regard God and the Form of Life as examples of what both he and Cebes understand by 'the immortal', construed as a general reference to the class of things which are immortal. Both parties then observe it to be a point of universal agreement (*consensus omnium*) that the things which are immortal will never be destroyed. Socrates and Cebes thus both seem to assume that (i) there are immortal, as well as mortal things, in nature, and that (ii) God and the Form of Life count among those things which are immortal. Moreover, since God and the Form of Life are not only immortal but also eternal (*aidion*) and free from destruction (*anôlethron*), so too it is established that soul, since it has already been shown to be immortal, must also be free from destruction. So, Cebes accepts

³¹ Cebes' references to *phthora* in his reply (106d3, d4), when Socrates had referred to that which is *anolethron*, show that he is not envisioning a difference between *phthora* ('corruption') and *olethros* ('destruction').

³² This shows that Socrates is referring to 'the immortal' as a reference to a class of *things* which are immortal, as opposed to a reference to the *property* of being immortal.

that soul is free from destruction because such things as God and the Form of Life are agreed not to admit destruction in turn.

How should we understand Socrates' references to God and the Form of Life itself as examples of things which are both immortal and free from destruction? We can examine each one of these in turn. Firstly, Socrates has not made any previous reference to God (*ho theos*) during the course of the *Phaedo's* final argument. However, he had alluded indirectly to the role played by divinity at the climax of his story about his earlier interest in natural philosophy (99b-d). There, Socrates criticised a plurality of natural philosophers for not thinking that the power for things to be as they are is owed to any daimonic strength (*tina... daimonian ischun*, 99c2-3), but considering that they will discover a stronger and more immortal 'Atlas' which holds all things together the more than this, as well as that they do not think as true that the good and binding binds and holds all things together (99c3-6). This comment suggests that, in Socrates' own view, goodness is ultimately responsible for the coherent nature of the cosmos and that this goodness is connected with (Olympian-style) divinity.³³ Hence, the first part of Socrates' 'autobiography' tacitly acknowledges that the continuation of all things – including, presumably, the continuation or non-destruction of souls – ultimately depends on divine goodness. Secondly, although Socrates has not previously referred to the Form of Life, it appears that the existence of this Form is both assumed and plays a crucial role in the argument. This is because, according to the metaphysical premises of the final argument, soul brings along life when it comes upon body by having a share of life *qua* the Form of Life. Hence, the conclusion that soul is immortal is conditional on accepting the existence of the Form of Life.³⁴ This makes Socrates' explicit reference to 'the Form of Life itself' (*auto to tês zôês eidos*) in the closing stage of the final argument especially apposite, since it is the soul's sharing of this particular Form that ultimately enables it to be immortal (as well as free from

³³ On the anti-atheistic polemic of this analogy, see Chapter 2, n. 14.

³⁴ Some commentators have argued that the argument also presumes the existence of an (un-mentioned) Form of Soul; see Bestor 1988 and Prince 2012. On this picture, the soul brings along life by bringing along the Form of Soul, which necessarily has a share of the Form of Life. However, I am not sure whether Plato in the *Phaedo* consciously presumed the existence of a Form of Soul. For one thing, this Form is never alluded to in the text, and, for another, its postulation would seem to commit Plato to the view that Forms can have a share of other Forms, although this notion is not discussed anywhere explicitly until the *Sophist*. Moreover, a Form of Soul might be said to undermine the soul's status as an ontological intermediary on account of its kinship with the Forms (see 78b-80b, cf. *Tim.* 35a-b). Hence, it seems safer to maintain that the *Phaedo's* final argument is not committed to a Form of Soul, even if the existence of this Form is potentially extractable from its metaphysical infrastructure.

destruction).³⁵ Later I will argue that this conditional element invites comparison with the *Timaeus*, in which the themes of the soul's immortality and indissolubility are examined in more overt connection with the immortality and indissolubility of the cosmos as a whole.

To sum up this section, Socrates' demonstration that soul is immortal (*athanatos*) in the central part of the *Phaedo*'s final argument shows that soul does not – and will never – admit death and still be what it was, namely soul. Then, in the final stage of the argument, Socrates proceeds to show that soul does not – and will never – admit destruction, meaning that it is free from destruction (*anôlethros*), because it is agreed that things which are immortal do not (ever) admit destruction. The soul's freedom from destruction comprises a conditional element, since its existence ultimately depends on the existence of God and the Form of Life in turn.

3. Immortality and indissolubility in the *Timaeus*

Let us turn now from the *Phaedo* to the *Timaeus*.³⁶ The following discussion of the *Timaeus* will proceed in two main steps. Firstly, I will examine the nature of the immortality and freedom from dissolution of the gods within the cosmos, looking especially to the evidence of the demiurge's speech (41a-d). Secondly, I will do the same for the human soul, looking to the descriptions of the soul as immortal (42e6-8, 43a4-6, 69c5-7) and one passage which describes its freedom from dissolution (43d6-7). At the end I will compare the immortality and freedom from dissolution of the cosmic gods with that of the soul.

(i) The cosmic gods

³⁵ Contrast the more deflationary verdict of Pakaluk (2010: 672): 'We need not consider that there is any significance in the mention of the Form of Life rather than any other Form, besides the fact that no special argument is needed to introduce the Form of Life, as the explanation "the soul is living on account of its sharing in the Form of Life" is already in the background and presupposed.'

³⁶ All un-marked Stephanus references in this section are to the *Timaeus*. Translations throughout are my own, but are based on Cornford 1937, Zeyl 2000, Lee, rev. Johansen 2008, and Waterfield 2008.

I begin by considering the *Timaeus*' presentation of the kind of immortality and indissolubility that are possessed by the gods in the cosmos. According to the *Timaeus*, the cosmos itself is a god, but there are also various other gods which inhere *within* the cosmos.³⁷ These gods are identified with the seven 'planets' (meaning the sun, the moon, Mercury, Venus, Mars, Jupiter and Saturn), the central earth, and the fixed stars, which rotate in a fixed position and only move by derivation from the clockwise motion of the circle of the Same (38c-39e, 40a-c). There are also the gods of the mythical and theogonic traditions (40d-e). And there even seem to be other, non-evident gods, on the basis of Timaeus' somewhat mysterious reference to 'those [gods] who appear to the extent that they are willing' (40a4).³⁸ After all these gods have been generated, the demiurge who crafted them addresses them as follows (41a6-b6):

Θεοὶ θεῶν, ὧν ἐγὼ δημιουργὸς πατήρ τε ἔργων, δι' ἐμοῦ γενόμενα ἄλута ἐμοῦ γε μὴ ἐθέλοντος. τὸ μὲν οὖν δὴ δεθὲν πᾶν λυτόν, τό γε μὴν καλῶς ἀρμολογεῖν καὶ ἔχον εὖ λύνειν ἐθέλειν κακοῦ· δι' ἃ καὶ ἐπεὶ περ γεγέννησθε, ἀθάνατοι μὲν οὐκ ἐστὲ οὐδ' ἄλυτοι τὸ πᾶμπαν, οὐτι μὲν δὴ λυθήσεσθε γε οὐδὲ τεύξεσθε θανάτου μοίρας, τῆς ἐμῆς βουλήσεως μείζονος ἔτι δεσμοῦ καὶ κυριωτέρου λαχόντες ἐκείνων οἷς ὅτ' ἐγένεσθε συνεδείσθε.

'Gods of gods! Products of whom I am demiurge and father are, after coming into being through me, free from dissolution except if I wish otherwise.³⁹ To be sure,

³⁷ On the *Timaeus*' cosmos as an example of 'polytheistic panentheism', see Baltzly 2010. On the corporeality of these gods, see Broadie 2016.

³⁸ In 37c6-7 Timaeus also refers to the cosmic god in motion and alive as '[a] generated *agalma* of the eternal gods (*tôn aidîôn theôn*)', a reference which Proclus – and many modern commentators after him – have interpreted as alluding to further, extra-cosmic and intelligible gods of whom the cosmic gods are in some sense imitations and objects of worship. See Cornford 1937: 99-101. However, later the same word *aidios* is used to describe the gods which constitute the fixed stars (39b4-5; this shows that the term is not reserved to things which are intelligible or un-generated). I therefore take it that these gods too are the en-cosmic gods, while the term *agalma* (from *agallein*, 'glory', 'exult in', 'rejoice') describes the reverential joy that is experienced by one who engages in worshipful contemplation of these gods (on this construal, the genitive phrase is objective, not subjective).

³⁹ The Greek text of the opening sentence of the demiurge's speech and its translation are historically contested. For discussion, see, e.g., Taylor 1928: 248-250, Cornford 1937: 140 n. 1 and 367-370, Karfik 2004: 87-148 and Broadie 2012: 85 n. 3. Printing Burnet's OCT, I understand the grammatical subject of the sentence to be *ta erga* (in agreement with the participle *genomena* and the adjective *aluta*, which are both neuter plural), but suggest that the subject has been attracted into the case of the relative pronoun with which it agrees (*hôn... ergôn*). On this construal, the 'original' text would read: *theoi theôn, [ta erga] hōn egō dêmiourgos patêr te di' emou genomena aluta [eisin] emou ge mê ethelontos*. This preserves the honorific vocative expression *theoi theôn*, which parallels the reference to Zeus as *theos de ho theôn* in *Crit.* 121b7. Note also that the *mê* in the expression

anything which was bound [is] dissolved. Yet to wish to dissolve that which was beautifully arranged and is in good condition is the mark of [someone] bad. On account of this and given that you've come into being, you're not immortal or free from dissolution *altogether*. But you won't be dissolved at all nor even encounter any shares of death, having been recipients of my will, which is a still greater and more commanding bond than those [sc. bonds] with which you were bound together when you came into being.

In this passage, the demiurge describes to the cosmic gods the conditions of their immortality and freedom from dissolution. Several aspects need to be addressed. The first aspect concerns the scope of the verbal adjectives *alutos* and *lutos*. Traditionally the adjective *alutos*, which appears in the first and second sentences of the Greek text, is translated into English as 'indissoluble' (or a synonymous expression thereof).⁴⁰ However, as we have seen from the final argument of the *Phaedo*, the rendition of alpha-privative adjectives with a standard modal force, such as is marked by the ending -ble in English, is liable to be misleading. For this reason, I have elected to translate both appearances of the word *alutos* as meaning 'free from dissolution', just as I elected to translate the key-term *anôlethros* in the final argument of the *Phaedo* as 'free from destruction' (as opposed to 'indestructible'). Generally, the fact that X is free from dissolution means that X does not – and will never – admit dissolution. Thus, in the opening sentence of his speech the demiurge asserts to the cosmic gods that the products which he brings into being will not (ever) admit dissolution on the condition of his will (*emou ge mê ethelontos*).⁴¹ Then, he relates this general assertion to the case of the cosmic gods. On the one hand, anything which has been bound together is dissolved, i.e. admits dissolution (*luton*). But on the other hand, to wish to dissolve something which was beautifully established and is in a good condition is characteristic of a malevolent, as opposed to a benevolent (cf. 29d-e), god. The translation of *lutos* as '[is] dissolved', as opposed to '[is]

emou ge mê ethelontos is not printed in all manuscripts (possibly as a result of confusion arising from the modal scope of the adjective *aluta*).

⁴⁰ See: 'indissoluble' (Cornford); 'cannot be undone', 'exempt from being undone' (Zeyl); 'cannot be dissolved', 'indissoluble' (Lee, rev. Johansen); 'imperishable', 'indestructible' (Waterfield).

⁴¹ Consider again the traditional translation of this sentence as meaning that the demiurge's products are *unable* to be dissolved except by his will (cf. 'indissoluble, save by my consent' (Cornford); 'cannot be undone but on my consent' (Zeyl); 'cannot be dissolved without my consent' (Lee, rev. Johansen); 'imperishable, unless I will it' (Waterfield)). Strictly speaking, it is not because of the will of the demiurge that his products are *indissoluble*, i.e. *incapable* of being dissolved, but that they are not (and will never be) dissolved. Thus, the qualified modal force which was shown to be operative in the *Phaedo* carries across to the *Timaeus*.

dissoluble', intensifies the exceptional nature of the fact that the gods, even though they are also bound together, will not admit dissolution because of the demiurge's will.

The second aspect concerns the nature of the immortality and freedom from dissolution of the cosmic gods and its explanation by the demiurge. At a linguistic level, this aspect is governed by the way in which we understand the *kai* at 41b2, where it appears within the expression *di' ha kai epeiper gegenêsthe*. Translators do not usually render the *kai* into any single word in English, which suggests that they take it to carry an epexegetical force.⁴² On this construal, the preceding expression *di' ha* is explained or explicated by the expression which follows, i.e. *epeiper gegenêsthe*. The earlier expression *di' ha* seems to look back to *both* halves of the previous clause, i.e. the fact that bound things admit dissolution and the fact that the wish to dissolve beautiful and orderly things is the mark of an evil disposition. Hence, these two factors are taken to be explained by the fact that these gods are generated (*epeiper gegenêsthe*), which is in turn the reason why they are not immortal and free from destruction *altogether* (*athanatoi men ouk este oud' alutoi to pampan*). However, I do not think that this construal can be correct. Rather, I take it that the *kai* is being used in its basic connective sense (meaning 'and') and that the demiurge is stating *two* reasons for the cosmic gods' immortal and un-dissolved condition. Moreover, each of these two reasons seems to correspond to each adjective. On the one hand, the cosmic gods are not immortal (*athanatoi*) altogether in view of the fact they have been generated.⁴³ On the other hand, they are not free from dissolution (*alutoi*) altogether because bound things admit dissolution and because the wish to dissolve beautiful things is the characteristic of evil. In the following clause, the demiurge explains what this means in practice in greater detail: these gods will not admit dissolution in any way (*outi men dê luthêsesthe*), nor will they encounter any shares of death (*oude teuxesthe thanatou moiras*).⁴⁴ Finally, the demiurge clarifies this aspect again by stating that these gods are recipients of his will (*boulêsis*), which

⁴² See: 'Therefore, although you, having come into being, are immortal nor indissoluble altogether' (Cornford); 'This is the reason why you, as creatures that have come to be, are neither completely immortal nor exempt from being undone' (Zeyl); 'Therefore, since you have been created, you are not entirely immortal and indissoluble' (Lee, rev. Johansen); 'Hence, although as created beings you are not altogether immortal or indestructible' (Waterfield).

⁴³ On the adverbial expression *to pampan* as qualifying both adjectives, see Mason 1994: 91 n. 4.

⁴⁴ The talk of 'shares of death' may indicate that the gods do not admit any interruption to their life-spans (versus immortal souls, which experience bodily transmigration).

is a stronger and more commanding bond than those bonds by which the gods were bound together when they came into being. The personification of this will as a bond (*desmou*) indicates that it is in some sense both akin and superior to the actual bonds which hold the gods as body-soul composites together.

This passage shows that the cosmic gods possess a *partial* kind of immortality and a *partial* kind of freedom from dissolution. This qualification to the nature of their existence is determined by the particular kind of entities which they are. Therefore, even though the opening assertions of the demiurge's speech comprise a strongly generalising aspect, we should apply caution in using them to determine the nature of other immortal and undissolved entities within the cosmos. For example, some commentators have supposed that the nature of the immortality of the *soul* can be straightforwardly read off from the evidence of the demiurge's speech. As A. E. Taylor wrote in his commentary, '[i]n 41b Timaeus does not teach without qualification the doctrine of the 'natural' immortality of the soul. Whatever 'comes into being' may conceivably have an end. In the last resort, the reason why the 'created gods' will never perish, is not that they are 'naturally' indestructible but that the goodness of God ensures their continuance'.⁴⁵ However, the soul is not mentioned at all in these lines, and it will only be indirectly alluded to in the second half of the demiurge's speech to the cosmic gods. We should thus first examine all of the available evidence before determining the nature of the immortality and indissolubility that is possessed by the human soul and comparing it to the immortality and indissolubility of the cosmic gods.

(ii) The soul

The demiurge first alludes to the human soul when he sets out his instructions to the cosmic gods for them to undertake the demiurgy of mortal living beings (41c3-d1):

⁴⁵ 1928: 251. In a similar vein, Mason 1994, Sedley 2009: 153-156 and Long 2019: 56-57 do not draw any distinction between the immortality and freedom from dissolution of the cosmic gods and the soul.

ἵνα οὖν θνητά τε ἧ τό τε πᾶν τόδε ὄντως ἅπαν ἧ, τρέπεσθε κατὰ φύσιν ὑμεῖς ἐπὶ τὴν τῶν ζώων δημιουργίαν, μιμούμενοι τὴν ἐμὴν δύναμιν περὶ τὴν ὑμετέραν γένεσιν. καὶ καθ' ὅσον μὲν αὐτῶν ἀθανάτοις ὁμώνυμον εἶναι προσήκει, θεῖον λεγόμενον ἡγεμονοῦν τε ἐν αὐτοῖς τῶν ἀεὶ δίκη καὶ ὑμῖν ἐθελόντων ἔπεσθαι, σπείρας καὶ ὑπαρξάμενος ἐγὼ παραδώσω· τὸ δὲ λοιπὸν ὑμεῖς, ἀθανάτῳ θνητὸν προσυφαίνοντες, ἀπεργάζεσθε ζῶα καὶ γεννᾶτε τροφήν τε διδόντες αὐξάνετε καὶ φθίνοντα πάλιν δέχεσθε.

So, in order that there should be mortal [things] and this universe really is entire, you turn in accordance with nature to the demiurgy of the living things, imitating my power involved in your generation. And, to the extent that it's appropriate for them to be of the same name, 'immortal', I will sow a seed which is called divine and which takes the lead in those of them who always wish to follow justice and yourselves, and, having started it off myself, I will pass it on. As for the rest, you, by weaving mortal next to immortal, make them to be living beings and beget them, build them up by giving them nourishment, and, when they decline, receive them back again.

The 'seed' which the demiurge will sow is the immortal soul. Further, he will contribute this component to mortal demiurgy to the extent that it's appropriate for the living beings 'to be of the same name "immortal"' (*athanatois homônumon einai*). This reference to homonymy suggests two things. Firstly, it suggests that the demiurge will make the immortal soul himself because it is appropriate for these living beings to be describable as 'immortal' (*athanaton*) to a limited extent. This soul is also said to be 'divine' (*theion*) and to be the ruling part in those human beings who follow justice and the gods. Secondly, it suggests that, by being describable as 'immortal' to a limited extent, these living beings will share a name or term of reference (*onoma*) which has just been used to describe the cosmic gods. However, just because the cosmic gods and the human soul can both be addressed by the word 'immortal', this does not mean – or, at least, it does not have to mean – that the exact *nature* of their immortality is identical.⁴⁶ Rather, the central point is that, whereas the cosmic gods are immortal (and this to a partial degree, as we have seen), the living beings are a combination of 'mortal' and 'immortal', and that they are 'immortal' to the extent that they will possess an immortal soul.

⁴⁶ Contrast Long 2019: 56-57, who cites this passage in support of identifying the gods' and human soul's immortality.

Timaeus refers to the immortality of the soul on three occasions within the ensuing narration. Let us quote these three passages together (42e6-8, 43a4-6, 69c5-7):

μένοντος δὲ νοήσαντες οἱ παῖδες τὴν τοῦ πατρὸς τάξιν ἐπείθοντο αὐτῇ, καὶ λαβόντες ἀθάνατον ἀρχὴν θνητοῦ ζώου...

While he [sc. the demiurge] remained [sc. in his customary character, cf. 42e5-6], his children apprehended the instruction of their father and obeyed it. Taking [the] immortal starting-point of [the] mortal living being...

ἐν ἑξ ἀπάντων ἀπεργαζόμενοι σῶμα ἕκαστον, τὰς τῆς ἀθανάτου ψυχῆς περιόδους ἐνέδουν εἰς ἐπίρρυτον σῶμα καὶ ἀπόρρυτον.

In producing each body, one from all [sc. of the portions of fire, earth, water and air], they bound the revolutions of the immortal soul into the body, which admitted flux in and out.

οἱ δὲ μιμούμενοι, παραλαβόντες ἀρχὴν ψυχῆς ἀθάνατον, τὸ μετὰ τοῦτο θνητὸν σῶμα αὐτῇ περιετόρνευσαν ὅχημά τε πᾶν τὸ σῶμα ἔδωσαν...

They [sc. the cosmic gods] imitated [him]. After taking over [the] immortal starting-point of soul, they subsequently twisted the mortal body around it and gave the whole body to it as a chariot...

What does the term ‘immortal’ (*athanatos*) mean in this context? I take it that it possesses the same scope as in the final argument of the *Phaedo*. As we established there, for X to be *athanatos* means for X not (ever) to admit death (and so die). Accordingly, the human soul is immortal in the *Timaeus* insofar as it does not – and will never – admit death. There is thus no alteration in the modal scope of the key-word *athanatos* between the final argument of the *Phaedo* and the *Timaeus*.

Timaeus also refers once to the nature of the soul’s freedom from dissolution, within a vivid account of its initial experiences after it has entered into the human body (43d3-e2):

... τὴν δ’ αὖ θατέρου διέσεισαν, ὥστε τὰς τοῦ διπλασίου καὶ τριπλασίου τρεῖς ἑκατέρας ἀποστάσεις καὶ τὰς τῶν ἡμιολίων καὶ ἐπιτρίτων καὶ ἐπογδῶν μεσότητας

καὶ συνδέσεις, ἐπειδὴ παντελῶς λυταὶ οὐκ ἦσαν πλὴν ὑπὸ τοῦ συνδήσαντος, πάσας μὲν στρέψαι στροφάς, πάσας δὲ κλάσεις καὶ διαφθοράς τῶν κύκλων ἐμποιεῖν, ὅσαχῆπερ ἦν δυνατόν...

... and they [sc. the motions, cf. 43c4] in turn rocked the [revolution] of the Different. Consequently, each of the three intervals of the double and triple, the middle terms of 3/2, 4/3 and 9/8, and their mutual bindings, since they were *completely* not admitting of dissolution except by the one who bound them together, underwent every [kind of] reversal and experienced every kind of deviation and ruin of their circles, in as many ways as it was possible...

Here, Timaeus describes the havoc which was wreaked on the soul's seven circles of the Different in the period immediately following its embodiment. A few details need to be clarified. Firstly, the verbal adjective *lutos* appears in a subordinate clause which describes the kind of freedom from dissolution that is possessed by the soul. The feminine ending *lutai* suggests that the adjective qualifies the preceding noun *sundeseis*, which denote the bindings that hold together the seven individual circles that make up the revolution of the Different.⁴⁷ Usually this adjective is translated together with the negation which follows it (*lutai ouk*) with a standard modal force, meaning that the bindings which inhere in the soul are *not able* to be dissolved except by the one who bound them together (meaning the demiurge).⁴⁸ However, as we noted earlier in connection with the demiurge's speech, the adjectives *lutos* and *alutos* carry a qualified modal force, meaning that the objects to which they do and do not (ever) admit dissolution. Hence, I have translated *lutai* in the expression *lutai ouk êsan* as meaning that the bonds 'were not admitting of dissolution'. This construal emphasises the fact that, even though the circles that make up the revolution of the Different – which are connected by a set of three intervals and middle terms – underwent every kind of reversal, deviation and ruin as a result of the body's impact, they nevertheless *were not* dissolved because they can

⁴⁷ Cf. the references to bonds at 36b7 (*tôn desmôn*), which describe the connection between the divided parts of the soul-mixture, and 38e5 (*desmois te empsuchois sômata dethenta zôia*), which describe the bonded nature of the seven 'planetary' gods.

⁴⁸ See: 'since they could not be completely dissolved save by him who bound them together' (Cornford); 'because they cannot be completely undone except by the one who bound them together' (Zeyl); 'which could not be completely unbound except by him who bound them together' (Waterfield); 'though the three pairs... and the connecting terms... could not be completely dissolved except by him who put them together' (Lee, rev. Johansen).

only be dissolved by the demiurge who bound them together. In other words, no amount of intellectual disorientation in early life will actually result in the dissolution of the soul (which would entail the death of the human being). Rather, the only way in which the bindings of the soul can be undone is through the intervention of the demiurge (cf. 32c2-4, 41a7-b6).

Secondly, Timaeus says that the bindings which hold together the soul ‘were *completely* not admitting of dissolution (*pantelôs lutai ouk êsan*) except by the one who bound them together’. How should this ‘completeness’ be understood? The various translations of this description suggest that the standard way of comprehending it is to differentiate between partial and complete kinds of dissolution, and to maintain that the complete kind of dissolution is only able to be effected by the demiurge. On this construal, the disorientating impact of initial embodiment *is* implied to dissolve the soul’s bonds to a partial (or incomplete) extent. However, I do not think that this is precisely correct. Rather, I take it that the soul’s bonds are *completely* free from dissolution in the sense that they are not dissolved at all, despite the carnage which is wreaked by the bodily motions on the intellect. In support of this, one might appeal to the use of the same word *pantelôs* at 37d4, which appears to carry an equivalent force. In this passage, Timaeus says that, whereas the nature of the living being – meaning the intelligible paradigm, to which the demiurge looked in his construction of the cosmos – happened to be everlasting (*aiônios*), ‘it was not possible to attach this [sc. an everlasting nature] to the begotten thing [sc. the cosmos] *completely*’ (37d3-4).⁴⁹ But, since the demiurge’s plan was to further the cosmos’ similarity to the paradigm, ‘he conceived to make a kind of moving image of everlastingness’ (37d5). Then we are told that, whereas the everlastingness which characterises the paradigm is singular and stationary, the everlastingness which characterises the image is mobile and numerically measurable (37d5-6). This suggests that, whereas *both* the intelligible paradigm *and* the cosmos (or, perhaps more specifically, its image) can be regarded as everlasting, only the intelligible paradigm is *completely* everlasting. But this does not mean that the cosmos is everlasting in a partial sense, or that the cosmos is occasionally subject to non-everlastingness. Correspondingly, I take it that the bonds within the soul are completely free

⁴⁹ This passage – which comes at the beginning of Timaeus’ account of the generation of time (37d-39e) – poses many interpretive problems. I wish to keep the focus squarely on the passage’s use of the term *pantelôs* for our purposes, postponing a fuller discussion of its controversies for a later discussion. See Chapter 3.2.2 and Chapter 4.3.

from dissolution in the sense that they do not (ever) admit (any) dissolution, and even though they *are able to* be dissolved by the demiurge.

This aspect can enable us to forge a distinction between the kind of freedom from dissolution which is possessed by the soul and the kind of freedom from dissolution which is possessed by the cosmic gods. On the one hand, we have seen that the cosmic gods are immortal and free from dissolution in a *partial* sense. Specifically, I argued that this partial kind of immortality and freedom from dissolution was understood to follow from the kind of entities which these gods are. All of the cosmic gods are living beings, which means that they are constituted of a body attached to a soul. Thus, it makes sense to regard the status of their continuation in qualified terms, since living beings – *qua* body-soul composites – are (standardly) prone to come apart at some time. On the other hand, the human soul, like its cosmic counterpart, is an essentially unified and coherent structure.⁵⁰ This essential coherence is based in the fact that the bonds which inhere in it – unlike the bonds which connect a god's body to its soul – are the product of mathematical proportions. Moreover, as we have noted, the soul in the *Timaeus* is also immortal, meaning that it does not (and will never) admit death (in any way). Thus, whereas the cosmic gods are immortal and free from dissolution in a partial sense, the soul is immortal in a continuous way with the final argument of the *Phaedo* and its freedom from dissolution can be described as complete.

To conclude this section, both the gods within the cosmos and the souls of mortal living beings are immortal and free from dissolution according to the *Timaeus*, meaning that they will not (ever) admit death and dissolution. However, both are able to be dissolved by their maker, the demiurge. The cosmic gods are immortal and free from dissolution in a partial sense because they are compounds comprising a body and a soul. The soul is immortal in the same sense as that which was demonstrated in the *Phaedo* and its bonds are completely free from dissolution, meaning that they do not (ever) admit dissolution in any way.

⁵⁰ The human soul is composed from leftovers of the ingredients out of which the demiurge composed the cosmos' soul, but these ingredients are described as being less pure by two and three degrees than their originals (41d4-7). This passage does not suggest any inferiority regarding the quality of the *bonding* of the souls (cf. *sustêsas*, 41d8).

4. The consequences of compatibility

In this final section, I will draw some conclusions which follow from the analysis in the previous two sections that the kind of immortality which is ascribed to the soul remains unchanged between the final argument of the *Phaedo* and the *Timaeus*. Let us start by considering Plato's presentation of modal scenarios (meaning scenarios relating to what is possible and impossible). In this chapter, I have argued that the key alpha-privative adjectives which appear in the *Phaedo* and the *Timaeus* – *athanatos*, *anôlethros* and *alutos* – possess a qualified, versus a standard, modal force. By this, I have meant that, in the case that a thing X is un-F (in which the English prefix 'un-' corresponds to the alpha privative in Greek), X does not – and *will never* – admit F, but not that X is *unable* to admit F. This shows that the notion of ability or possibility which is standardly taken to characterise modal expressions does not inhere in the semantic scope of the alpha-privative adjectives themselves. But this does not mean that Plato lacks a *conception* of modality as it is standardly understood altogether.⁵¹ In order to show this, let us go back to the presentation of the soul's immortality in the *Timaeus*. Here, as we have seen, the demiurge is presented as being *able* to dissolve the bonds of the soul – and thereby the soul as a bonded structure itself – but as not (ever) going to dissolve the soul because he is good and the soul is a beautifully arranged and orderly thing. These two factors, combined with the fact that the soul's bonds can only be undone by him, confirm that the soul is never going to admit dissolution. This shows, firstly, that the talk of the demiurge's 'ability' to dissolve the soul relies on an extremely attenuated notion of ability, since all of these aspects are utterly beyond doubt. Secondly, because the soul's dissolution will never be realised, the guarantee of the demiurge approximates to the force of an impossibility statement. In other words, what we, following Aristotle, are accustomed to express in terms of ability or possibility is represented by Plato in terms of divine good will.⁵²

⁵¹ The thinker who is most likely responsible for our standard conception of modality in terms of possible and impossible scenarios is Aristotle, who, over two chapters in the *On the Heavens* (*Cael.* 1.11-12), demonstrates that to say that X is always F is one and the same as saying that it is impossible that X is not F. On Aristotle's arguments as a response to Plato, see Denyer 2000.

⁵² We might say that, while Plato speaks in terms of contrary states of affairs, Aristotle speaks in terms of contradictories.

So, even though Plato's alpha-privative adjectives do not carry a standard modal force, the standard modal force *is* conveyed through his presentation of unrealised scenarios.

Secondly, in light of these considerations about modality, how should the nature of the soul's immortality be understood? Should we describe it as 'essential' or 'conferred', 'natural' or 'un-natural', 'intrinsic' or 'extrinsic', or something else? I would like to suggest that the soul can be appropriately understood as 'essentially' immortal – and in the *Timaeus* no less than the *Phaedo* – but that this immortality also comprises a 'conditional' component. In the final argument of the *Phaedo*, as we have seen, the soul's relation to immortality is made to stand in a basic parallel to the relation of hotness to fire, coldness to snow, and oddness or evenness to particular odd or even groups.⁵³ As many commentators have noted, Plato seems to be angling here – and perhaps for the first time in Greek philosophical argument – at the notion of essential predication.⁵⁴ However, this proto-notion of essential predication is also based on the postulation of separate Forms.⁵⁵ This is because, within the metaphysical structure of the final argument, the demonstration of soul's immortality is ultimately reliant on the existence of Forms. Thus, even though the soul is shown to be essentially immortal, its immortality comprises a conditional element, i.e. the condition that Forms exist. Moreover, I have argued that, in the closing stage of the final argument, Socrates establishes the soul's freedom from destruction from the universally accepted view that all things which are immortal, such as God and the Form of Life, are also free from destruction. In other words, soul is shown to be free from destruction *because* such things as God and the Form of Life are free from destruction. How does this compare with the picture in the *Timaeus*? Although both works have their own perspectives on the soul's immortality, it is tempting to see a continuity in the particular way that this conditional element is understood. In the *Timaeus*, the soul's freedom from dissolution is presented as depending squarely on the good nature of its maker, the demiurge. The demiurge is 'God' (*ho theos*), and in a way which can be read back into the reference to God in the *Phaedo*. But the demiurge also constructs the cosmos by looking to an intelligible paradigm, which is described as the all-

⁵³ On the subtle difference in the case of the soul, see n. 14 above.

⁵⁴ See, especially, Bestor 1988 and Mann 2000, Part II ('Plato's metaphysics and the status of things').

⁵⁵ The mention of Forms is re-introduced at 100b-e in the context of Socrates' display of his 'second voyage', which itself looks back to the beginning of his reply to Cebes' objection (95e-96a). This lengthy passage poses many interpretive problems; for a full defence of its coherence and connectedness to the final argument for soul's immortality, see Chapter 2.

complete Living Being (30c-d, 37d). This intelligible paradigm doubles up as the Form of Living Being (*to zoîon*). Hence, both in the *Phaedo* and in the *Timaeus* an intelligible form of life is postulated which is understood to account for the existence of things within the natural world in turn. Thus, besides their common view on the nature of soul's immortality, both works present a like-minded picture of the conditional aspect of soul's freedom from destruction.⁵⁶

Thirdly and finally, although this chapter has focussed on the final argument of the *Phaedo* and the *Timaeus*, I think that its conclusions may be extended to demonstrate the coherence of Plato's understanding of the soul's immortality as a whole. I therefore take it as a further consequence of this discussion that Plato's use of the language of immortality (*athanatos*), as well as his use of other alpha-privative adjectives, assumes the same qualifiedly modal force in other dialogues as that which we have observed in the *Phaedo* and the *Timaeus*. The compatibility of the *Phaedo*'s final argument and the *Timaeus* on the nature of soul's immortality can encourage us to draw further connections between these two works, as I will do in the next chapter.

⁵⁶ This paragraph also allows me to clarify some aspects of the most systematic defence of the traditional view by David N. Sedley (Sedley 2009). As noted earlier, Sedley identifies the 'essential' immortality which qualifies the soul in the final argument of the *Phaedo* with the immortality possessed in the *Timaeus* by the *demiurge*. However, to judge from the evidence of 37a1-2, the *demiurge* is an intelligible entity (which puts him on an ontological par with the Forms). Conversely, the soul in the *Phaedo* is regarded as kindred to the Forms (78b-80b) and in the *Timaeus* is presented as an ontological intermediary (35a-b, cf. n. 34 above). Hence, it makes little sense to identify the soul's immortality in the *Phaedo* with that of the *demiurge* of the *Timaeus*. Moreover, Sedley explains the supposed demotion of the soul's 'essential' to 'conferred' immortality between the *Phaedo* and the *Timaeus* by contending that, in the *Timaeus*, the immortal soul is a 'composite' structure, in opposition to its 'incomposite' nature in the *Phaedo* (2009: 155-156). However, as Sedley would surely admit, the immortal soul in the *Timaeus* is not composite in the same sense that the *embodied* soul (which comprises an immortal soul and the mortal kind of soul, cf. *Tim.* 69d-72d) is composite, and rather appears to be a unitary structure. Moreover, Socrates' reference to 'soul' (*psychê*, without the definite article) in the *Phaedo* can be understood to denote what *Timaeus* in the *Timaeus* describes as the immortal soul. Thus, there is no reason to ascribe a demotion in the soul's immortality to Plato's views on the soul's composition.

2 The *Phaedo* and the *Timaeus*' approaches to natural philosophy

1. The *Phaedo* and the *Timaeus*, again

The *Phaedo* and the *Timaeus* share a number of common themes. As we saw in the previous chapter, one of these themes is the immortality of the soul and the conditions of its indestructibility. But another part of the *Phaedo* which is agreed to be significant for Plato's project in the *Timaeus* is Socrates' narration of his interest in natural philosophy as a young man (*Phd.* 96a-99d). This narration belongs to a longer section of the dialogue which commentators often refer to as 'Socrates' autobiography' (*Phd.* 95e-102b). Socrates' autobiography – as I shall also refer to it from now on¹ – must count among the most intensely studied passages of any Platonic dialogue. In it, Socrates undertakes to reply to Cebes' objection against the extent of the soul's survival after death, and which he has just recapitulated before the start of the passage (*Phd.* 95b-e, cf. 87a-88b). However, the way in which Socrates goes about responding to Cebes' view poses a number of interpretive challenges. To begin with, he says that Cebes' objection requires a thorough investigation into the reason concerning generation and corruption as a whole, and offers to describe his own experiences in this area (*Phd.* 95e-96a). Then, he relates his interest in natural philosophy as a young man, which however ended in disappointment after being frustrated by the natural-philosophical explanations of Anaxagoras (*Phd.* 96a-99d). Next, Socrates offers to exhibit to Cebes his 'second voyage' into the reason (*Phd.* 99d). After Cebes has agreed to hear this, he proceeds to outline his own, idiosyncratic approach, which involves the formulation of accounts (*logoi*), a role for images (*eikones*), and the hypothesis of separate Forms (*Phd.* 99d-100b). Lastly, Socrates explains the new role for the Forms and lays the foundations for the subsequent final argument for soul's immortality (*Phd.* 100b-102b). Each stage of this autobiographical passage contains various points of controversy, and commentators often

¹ This terminology is not intended to suggest that the experiences which are described by the Platonic interlocutor Socrates represent (or were meant by Plato to represent) those of Socrates the historical individual. For the chronological closeness, however, see Sedley 2007: 89-92.

seem to be at a loss in seeing how each part is supposed to relate to any of the others.² There is also uncertainty about the broader motivation for Socrates' autobiography, positioned as it is as a 'bridge' between his re-capitulation of Cebes' objection and the final argument for soul's immortality.

In this chapter, I will present an interpretation of the entire passage which defends the purpose of Socrates' autobiography within this part of the *Phaedo* as a whole. In other words, I will argue that, contrary to first appearances³, this part of the dialogue contains an underlying explanatory coherence which means that all its parts can be fitted together in a co-ordinated way. This will help us to clarify some debated issues within the passage and appreciate its broader significance as a biographical account of Socrates' philosophical approach. Furthermore, I will argue that the relationship between Socrates' autobiography and the *Timaeus*' approach to natural philosophy is even closer than commentators have generally allowed. Typically, commentators have limited their comparisons between this part of the *Phaedo* and the *Timaeus* to the section on Socrates' interest in natural philosophy (*Phd.* 96a-99d).⁴ As we shall see shortly, the exact details of these comparisons have also been debated in various ways. However, I want to suggest that the *second* half of the *Phaedo*'s autobiographical passage – in which Socrates describes his 'second voyage' into the reason concerning generation and corruption as a whole (*Phd.* 99d-102b) – is also relevant to the kind of natural-philosophical approach which is developed in the *Timaeus*. This will allow us to see that the *Timaeus* – even though it is not narrated by Socrates – is nevertheless shot through with a recognisably 'Socratic' approach to natural philosophy. The chapter is divided into four sections (§2-5), which alternate in focus between a part of Socrates' autobiography and its significance for the *Timaeus*. Lastly (§6) I will reflect on the significance of this interpretation of the *Phaedo*'s autobiography for Socrates' later comments on natural philosophy (108e-109a).

² For various studies of the autobiographical passage as a whole, see Vlastos 1969, Bolton 1998, Sedley 1998, Kanayama 2000, Kelsey 2004, Sharma 2009, Bailey 2014 and Vázquez 2020.

³ In particular, many commentators regard the first part of Socrates' autobiography as little more than an intellectual digression, which constitutes 'a conveniently dramatic way of presenting a collection of problems and solutions' (Rowe 1993: 229).

⁴ For previous comparisons, see Lennox 1985, Strange 1985, Sedley 1989, Mueller 1998, Johansen 2004: 103-106, Broadie 2012: 173-181, and Johansen 2020.

2. Cebes' objection and Socrates' disappointment with the natural philosophers (95e-99d⁵)

Let us begin from the start of Socrates' autobiography, after he has just re-capitulated Cebes' objection (95e7-96a5):

Ὁ οὖν Σωκράτης συχνὸν χρόνον ἐπισχὼν καὶ πρὸς ἑαυτὸν τι σκεψάμενος, Οὐ φαῦλον πρᾶγμα, ἔφη, ὦ Κέβης, ζητεῖς· ὅλως γὰρ δεῖ περὶ γενέσεως καὶ φθορᾶς τὴν αἰτίαν διαπραγματεύεσθαι. ἐγὼ οὖν σοι δίδειμι περὶ αὐτῶν, ἐὰν βούλῃ, τὰ γε ἐμὰ πάθη· ἔπειτα ἂν τί σοι χρήσιμον φαίνεται ὧν ἂν λέγω, πρὸς τὴν πειθῶ περὶ ὧν δὴ λέγεις χρήσῃ.

Ἀλλὰ μήν, ἔφη ὁ Κέβης, βούλομαί γε.

Then Socrates held back for a considerable time, examining something with himself. 'It's not a trivial thing you're inquiring into, Cebes', he said. 'For it requires a complete pre-occupation with the reason concerning generation and corruption as a whole. I'll go through my own experiences about them with you, if you like. Then, if something appears useful to you of the things I say, use [it] to persuade yourself about the things you're speaking about.'

'Oh, I'd like that', said Cebes.

This passage sets up a number of puzzles which will only become resolved over the course of the entire autobiographical passage. Firstly, it is striking that the first sentence features an intervention from the dialogue's external speaker, Phaedo, who is narrating Socrates' conversation in his prison-cell to his friend Echecrates. Phaedo says that Socrates 'held back for a considerable time, examining something with himself'. Although we do not know yet what this 'something' is, the description of Socrates' contemplative pause builds suspense for his response to Cebes' view which is to come. Secondly, Socrates does not proceed to address Cebes' objection directly, but he broadens the scope of the conversation to a general philosophical inquiry. Specifically, he says that Cebes' point 'requires a thorough pre-occupation with the reason concerning generation and corruption as a whole'. However, this generalising manoeuvre is neither explained by Socrates nor asked about by Cebes, so that

⁵ All un-marked Stephanus references are to the *Phaedo* in this section.

we remain in the dark about how this new inquiry is exactly motivated. Thirdly, Socrates offers to recount his *own* experiences (*ta ge ema pathê*) concerning generation and corruption and intimates that this will be *useful* to Cebes for understanding his own position (*chrêsimon*, cf. *chrêsei*). But again, Socrates does not unpack what he means by generation and corruption, nor does he indicate how his own experiences in this subject area will be beneficial to Cebes' point of view. I will come back to these puzzles later, after we have analysed Socrates' entire account of his experiences.

Now Socrates starts off by describing his interest in natural philosophy as a young man (96a6-10):

Ἄκουε τοίνυν ὡς ἐροῦντος. ἐγὼ γάρ, ἔφη, ὦ Κέβης, νέος ὢν θαυμαστῶς ὡς ἐπεθύμησα ταύτης τῆς σοφίας ἣν δὴ καλοῦσι περὶ φύσεως ἱστορίαν· ὑπερήφανος γάρ μοι ἐδόκει εἶναι, εἰδέναι τὰς αἰτίας ἐκάστου, διὰ τί γίγνεται ἕκαστον καὶ διὰ τί ἀπόλλυται καὶ διὰ τί ἔστι.

‘So listen to what I say’, he said. ‘As a young man, Cebes, I was amazingly enthused about this wisdom which they call “inquiry concerning nature”. It seemed to me to be magnificent to know the reasons for each [thing], why each [one] comes into being and why it’s destroyed and why it exists.’

We can refer to the branch of wisdom which Socrates describes as being called ‘inquiry concerning nature’ as ‘natural philosophy’. Socrates implies that natural philosophy is concerned with knowing the *reasons* (*aitiai*) for each thing, which he glosses as meaning why each thing comes into being and is destroyed and exists.⁶ Note, however, that it remains unclear what relationship the study of natural philosophy is supposed to stand to the original object of investigation which Cebes’ objection had prompted, i.e. the reason concerning generation and corruption as a whole. I will come back to this aspect later. After this passage, Socrates mentions some commonplace questions of natural-philosophical inquiry (96b). But, he says, after examining these questions and the affairs concerning the heaven and the earth, he decided that he wasn’t a ‘natural’ at this kind of investigation (*aphuês*, punning on *peri*

⁶ On the translation of *aitiai* as ‘reasons’ here and throughout, rather than ‘causes’, see §3.

phuseôs; 96c). He explains that this was because he came to un-learn things which he had previously understood, giving the examples of human growth and mathematical operations of division, addition and subtraction (96c-97b).⁷ This shows that Socrates' initial foray into natural philosophy put him in a state of utter confusion. In this state, he says, he cannot even persuade himself how he knows why anything comes into being, is destroyed or exists, according to this approach of proceeding (97b). This passage marks Socrates' first mention of the Greek word *tropos*⁸, which I translate throughout as 'approach', and which, as we shall come to see shortly, represents a key-term in his autobiography as a whole. Instead, he says, 'I jumble together another kind of *approach* (*tin' allon tropon*) at random, and I don't submit to this [*approach*] (*touton [tropon]*) in any way' (97b6-7). I will come back to the details of this alternative approach later, by connecting it with the approach which is represented by Socrates' 'second voyage' in inquiring into the reason which he has pre-occupied himself with (99d).

It is seemingly in this state of utter confusion when Socrates hears someone reading from a book of Anaxagoras (97b8-d1):

Ἀλλ' ἀκούσας μέν ποτε ἐκ βιβλίου τινός, ὡς ἔφη, Ἀναξαγόρου ἀναγιγνώσκοντος, καὶ λέγοντος ὡς ἄρα νοῦς ἐστὶν ὁ διακοσμῶν τε καὶ πάντων αἷτιος, ταύτη δὴ τῇ αἰτίᾳ ἦσθην τε καὶ ἔδοξέ μοι τρόπον τινὰ εὖ ἔχειν τὸν νοῦν εἶναι πάντων αἷτιον, καὶ ἡγησάμην, εἰ τοῦθ' οὕτως ἔχει, τόν γε νοῦν κοσμοῦντα πάντα κοσμεῖν καὶ ἕκαστον τιθέναι ταύτη ὅπῃ ἂν βέλτιστα ἔχη· εἰ οὖν τις βούλοιο τὴν αἰτίαν εὐρεῖν περὶ ἐκάστου ὅπῃ γίγνεται ἢ ἀπόλλυται ἢ ἔστι, τοῦτο δεῖν περὶ αὐτοῦ εὐρεῖν, ὅπῃ βέλτιστον αὐτῷ ἐστὶν ἢ εἶναι ἢ ἄλλο ὅτιοῦν πᾶσχειν ἢ ποιεῖν.

'But one day I heard from someone reading a book of Anaxagoras', [Socrates] said, 'and saying how *intelligence* is that which organises and is responsible for all things. I was pleased by this reason and it seemed to me to be a successful kind of approach that [one's] intelligence is responsible for all things, and I considered that, if this is the case, the intelligence which orders all things orders and places each thing in this way

⁷ All of these examples are revisited later in the course of Socrates' 'second voyage' into the reason concerning generation and corruption (100e-101d). For discussion, see e.g. Sedley 1998 and Politis 2010.

⁸ *kata touton ton tropon tēs methodou* (97b5-6). The word *tropos*, which literally denotes a 'turn' (> *trepein*), commonly denotes a 'way', 'manner', 'fashion', 'guise' of doing something (LSJ II), but can also mark a 'way of life', 'habit', 'custom' or 'character' (III), a 'mode' or 'style' in music (IV), a 'manner', 'style' or 'trope' in rhetoric (V), and a 'method' of explanation or instruction (VI).

in which it would be best for it to be in. So, if someone wished to discover the reason concerning each thing, in what way it comes into being and is destroyed and exists, one ought to find out this about it, in what way it is best for [the thing] either to be or to suffer or act in whatever way...'

In this passage Socrates describes his initial reaction to the lecture given on Anaxagoras' book. Several features need to be noted. Firstly, Socrates hears that, according to Anaxagoras, intelligence is what organises and is responsible for – or a 'cause' of (*aitios*) – all things.⁹ The *te kai* which connects these two aspects suggests that the status of being responsible is closely linked to the status of being an organiser (in an orderly way – *ho diakosmôn*). Socrates also refers to the Anaxagorean claim that intelligence is a general organising cause as a 'reason' (*aitia*). Further, he describes the idea that one's intelligence (*ton noun*) is responsible in a general sense as a successful kind of *approach* (*tropos*). Next, Socrates states that, if intelligence is responsible in a general sense, then the universal ordering intelligence will order each thing in the way that it is *best* for it to be. Importantly, this notion is Socrates' own consideration, rather than a view which he heard from the lecturer on Anaxagoras.¹⁰ Socrates also supposes that this reasoning can be applied generally to any object of natural philosophy, so that the reason for or concerning X – meaning why X comes into being and is destroyed and exists (cf. 96a8-9) – can be given by finding out in what way it is best for X to exist. As he goes to say, if Anaxagoras explains the reason and necessity for the earth's shape and position in the cosmos by explaining what is better for the earth and why, he will cease to desire any other kind of reason (97e-98a). He also expects that, after giving the reason for each thing and for all in common, Anaxagoras would explain the best for each thing and the common for them all (98b). In sum, Socrates hopes to learn about goodness through intelligence-based explanations of the objects in the cosmos.

However, Socrates is famously disappointed by the natural-philosophical explanations that are given by Anaxagoras. Specifically, his complaint is that Anaxagoras does not use (his) intelligence at all and does not ascribe any reasoning to it for the ordering of things in the cosmos, but he ascribes the reasoning to air, aether and water, 'and other things, many and

⁹ On the translation of *aitios* as 'responsible', meaning a 'cause', see §3.

¹⁰ Some commentators have speculated that the one reading from Anaxagoras is Archelaus (of Athens), a student of Anaxagoras and Socrates' teacher. See, e.g. Hackforth 1972: 124 n. 4 and cf. n. 13 below.

absurd' (98b-c).¹¹ To explain his point, Socrates now launches into a comparison involving his own circumstances of sitting and conversing in prison. Anaxagoras' approach is like saying that Socrates' actions are because of intelligence, but proceeding to explain the reasons for each of them by pointing to the fact that his body is made of bones and sinews, that these bones and sinews have certain natural properties, and that it is because he can bend his limbs that he is sitting in prison (98b-c). Similarly, if one should ascribe the reasoning for their conversation to sounds, air and hearing, one will be neglecting to state 'the *as-true* reasons' (*tas hōs alēthōs aitiās*, 98e1), namely that the Athenians thought that it was *better* to convict Socrates and that Socrates thought that it was *better* to sit in prison rather than run away to Boeothia or Megara (98d-99a).¹² Now Socrates brings his criticism against Anaxagoras to a head (99a4-b4):

ἀλλ' αἴτια μὲν τὰ τοιαῦτα καλεῖν λίαν ἄτοπον· εἰ δέ τις λέγοι ὅτι ἄνευ τοῦ τὰ τοιαῦτα ἔχειν καὶ ὅσῃ καὶ νεῦρα καὶ ὅσα ἄλλα ἔχω οὐκ ἂν οἷός τ' ἦ ποιεῖν τὰ δόξαντά μοι, ἀληθῆ ἂν λέγοι· ὥς μέντοι διὰ ταῦτα ποιῶ ἃ ποιῶ, καὶ ταῦτα νῦν πράττων, ἀλλ' οὐ τῇ τοῦ βελτίστου αἰρέσει, πολλῇ ἂν καὶ μακρὰ ῥαθυμία εἴη τοῦ λόγου. Τὸ γὰρ μὴ διελέσθαι οἷόν τ' εἶναι ὅτι ἄλλο μὲν τί ἐστὶ τὸ αἴτιον τῷ ὄντι, ἄλλο δὲ ἐκεῖνο ἄνευ οὗ τὸ αἴτιον οὐκ ἂν ποτ' εἴη αἴτιον·

But to call the things of this sort *responsible* is totally absurd. If one were to say that, without the possession of such things as bones, sinews and everything else which I do possess, I wouldn't be able to do what seemed [good] to me, he'd be speaking truly. However, the notion that it's *because of* these things that I do what I do, and that I'm performing these actions because of intelligence, but not through a choice of what is best, would be altogether a cumbersome and loose way of speaking. For it shows an inability to differentiate that there's something which is what is responsible in reality, but that there's something else without which what is responsible wouldn't ever be responsible.

¹¹ To 'ascribe reasoning to X' is my translation of the verb *aitiasthai*, which appears three times in the natural-philosophical excursus (98b9, c2, e1; on the first occasion with the prefix *ep-*, which looks to the dative *nōi*). LSJ state that the verb means 'accuse', 'censure', 'bring a charge against' (Ia), as well as 'allege as the cause' (II), citing our passage. On the first occasion the verb *ep-aitiasthai* has an accusative object *tinās aitiās* (98b9), whereas on the second and third occasions the simple verb *aitiasthai* takes as its object the things which are involved in the reasoning (air and aether, etc. in 98c2 and sounds and air, etc. in 98e1). I take it the verb picks out that which are the *aitiai* in the explanandum at hand, not to that which is *aitios* or *aitia*; see below.

¹² The expression *tas hōs alēthōs aitiās* (98e1) might also be translated into more natural English as 'the putatively true reasons' (with *hōs* marking a subjective reason or intention).

Anaxagoras' mistake is based on a mis-assignment of responsibility. When he explains states of affairs in the cosmos, he says, i.e. *claims*, that intelligence is responsible. But, when he actually accounts for the phenomenon, he ascribes the reasoning to other – bodily – things, which are absurd to describe as responsible but which are necessarily present for the things which are truly responsible to be able to act as such. Moreover, even though Anaxagoras clearly does give *some* reasons for various cosmic phenomena, these are not the 'as-true reasons', as the Athenians and Socrates' judgment is the as-true reason of his sitting in prison. This is why Anaxagoras' explanations are characterised by a 'cumbersome and loose way of speaking'. On the one hand, he has offered a promising explanans – that intelligence is that which organises and is responsible for all things – but, on the other hand, he has failed to involve this explanans in his accounts of the cosmic explananda.

Why does Socrates think that it is absurd to regard air and aether (in Anaxagoras' natural philosophy) or bones and sinews (in his own example of sitting in prison) as 'responsible'? The implication seems to be that the air and aether are unable to explain the ordering of things in the cosmos because they do not – and are unable to – possess intelligence (*nous*), just as the bones and sinews are unable to explain Socrates' decision to stay in prison as a choice of what is best. For, if the air and aether were able to possess intelligence, Socrates would not be able to say that Anaxagoras has *said*, i.e. claimed, that intelligence is responsible but that in fact the reasoning is ascribed to other things, so that he is not making any use of (his) intelligence at all. This suggests that one requirement for the status of being responsible (*aitios*) in Socrates' view is to possess intelligence, in contrast to the things which are necessarily present for that which is responsible, which do not possess any intelligence at all. Further, Socrates earlier considered that, if intelligence is responsible in a general sense, it will order each thing in whatever way it is *best* for it to be in. This suggests that, whereas the things which are truly responsible will organise states of affairs to be in the best possible way, things which are mistakenly said to be responsible lack this evaluative capacity (because they do not possess intelligence). Moreover, Socrates implies from his example of sitting in prison that Anaxagoras has neglected to state the as-true reasons for cosmic explananda, and this *because* he has confused what is responsible with what is necessarily present for the thing which is responsible. This suggests that the as-true reasons

will make use of intelligence and appeal to the choice of what is best, whereas the reasons which Anaxagoras did provide, and which ascribe the reasoning to bodily things such as air and aether, do *not* appeal to intelligence but explain the necessary presence of the things which are not responsible. I will come back to this implied differentiation between two kinds of reason later, when comparing this passage with the understanding of natural-philosophical explanation in the *Timaeus*.

Finally, after criticising Anaxagoras for his mis-assignment of responsibility, Socrates extends this objection against an anonymous group of natural philosophers (99b4-c8):

ὁ δὴ μοι φαίνονται ψηλαφῶντες οἱ πολλοὶ ὥσπερ ἐν σκότει, ἀλλοτρίῳ ὀνόματι προσχρώμενοι, ὡς αἴτιον αὐτὸ προσαγορεύειν. Διὸ δὴ καὶ ὁ μὲν τις δίνην περιτιθεὶς τῇ γῇ ὑπὸ τοῦ οὐρανοῦ μένειν δὴ ποιεῖ τὴν γῆν, ὁ δὲ ὥσπερ καρδόπῃ πλατεῖα βάθρον τὸν ἀέρα ὑπερείδει· τὴν δὲ τοῦ ὡς οἷόν τε βέλτιστα αὐτὰ τεθῆναι δύνάμιν οὕτω νῦν κεῖσθαι, ταύτην οὔτε ζητοῦσιν οὔτε τινὰ οἶονται δαιμονίαν ἰσχὺν ἔχειν, ἀλλὰ ἡγοῦνται τούτου Ἄτλαντα ἂν ποτε ἰσχυρότερον καὶ ἀθανατώτερον καὶ μᾶλλον ἅπαντα συνέχοντα ἐξευρεῖν, καὶ ὡς ἀληθῶς τὸ ἀγαθὸν καὶ δέον συνδεῖν καὶ συνέχειν οὐδὲν οἶονται. ἐγὼ μὲν οὖν τῆς τοιαύτης αἰτίας ὅπῃ ποτὲ ἔχει μαθητῆς ὅτουοῦν ἥδιςτ' ἂν γενοίμην·

That [viz. something else without which what is responsible wouldn't ever be responsible, cf. 99b3-4] is what many people, groping around as in darkness, appear to me to denote as the thing responsible. As a result, one person makes the earth remain below the heaven, positioning a whirlpool around the earth, while another puts the air underneath [the earth] as a prop, comparing it [sc. the earth] to a wide trough for kneading dough. But the power of being situated as they are, so as to be in the best possible arrangement, *this* they don't inquire into, nor do they think that [it] has any superhuman strength. Rather, they consider that they would one day discover an 'Atlas' that's stronger and more immortal and holds all things together more than this, and they don't think at all as true that the good and binding binds and holds [all things] together. Certainly I would most gladly become a student of anyone [who knew] how the reason of this sort operates.

The natural-philosophical tradition misunderstands responsibility. Consequently, the explanations which different natural philosophers give to account for the earth's position in

the cosmos – invoking a whirlpool for one, a cushion of supporting air for another¹³ – arise from the same categorical error of confusing a necessarily present factor with that which is responsible for the ordering of things in the cosmos. Socrates adds that none of them considers the power for things to be in the best-possible way, nor that this possesses a daimonic strength, nor do they think ‘as true’ (*hōs alēthōs*, cf. 98e1) that the good and binding bind and hold all things together. This again suggests that such a power is truly responsible for cosmic explananda, and this power is associated with the divine, in opposition to the Titan ‘Atlas’ which is a mythologised version of the natural philosophers’ explanations.¹⁴ Finally, Socrates expresses the desire to learn about ‘how the reason of this sort operates’. Following a traditional consensus, I take this to be the reason that all things are positioned in the best-possible way, and that Socrates earlier *expected* Anaxagoras to provide when he stated that intelligence is responsible for all things.¹⁵ Thus, even though Socrates failed to learn about intelligence-based reasoning from the natural philosophers, he retains the hope to do so along the lines which he himself has sketched.

3. The *Timaeus*’ scheme of natural-philosophical explanation¹⁶

As commentators have long recognised, Socrates’ hopes are, as it were, satisfied in the *Timaeus* by the title-character’s long account on the cosmos’ generation.¹⁷ In this account,

¹³ For the association of these two theories with Socrates’ teacher Archelaus (of Athens) and his contemporary Diogenes (of Apollonia), rather than an older set of ‘Presocratic’ philosophers, see Vázquez forthcoming.

¹⁴ Atlas was a Titan punished by Zeus to hold up the earth and keep it distanced from the heaven. Thus, whereas goodness represents the Olympian order, the natural philosophers are implicitly cast in the role of atheists; compare, e.g., the Athenian stranger’s argument against a group of atheistic opponents in *Laws* 10 (on which see Chapter 5.4. below).

¹⁵ Cf. the *aitia* mentioned at 97c2. Daniel Vázquez (2020) has recently challenged this traditional view by arguing that the *aitia* mentioned at 99c7 looks to the natural philosophers’ alternative ‘Atlas’-based explanations, rather than the reason that all things are positioned in the way that is best. However, this reading seems to be based on a misunderstanding of Socrates’ polemic: whereas Vázquez differentiates between *three* positions, i.e. those of the natural philosophers (including Anaxagoras), the intelligence-based approach, and what he calls the view of the ‘Atlas theorists’, the text only seems to distinguish *two* parties, since the holders of the ‘Atlas’-based explanations *are* the group of natural philosophers, whose appeals to ‘Atlas’ are projected to continue in the future (see *an + pote*, indicating futurity). I therefore retain the traditional interpretation.

¹⁶ All un-marked Stephanus references in this section are to the *Timaeus*.

¹⁷ See, e.g., Cornford 1937: 174-175, Morrow 1950, Lennox 1985, Strange 1985, Sedley 1989: 359 and 2007: 91-92, Mueller 1998, Johansen 2004: 103-106, Broadie 2012: 173-181 and Johansen 2020: 14-15.

Timaeus describes the cosmos' construction by an intelligent demiurge who orders everything to be in the best-possible way. But he also provides a more refined scheme of natural-philosophical explanation than that which Socrates had presented in the *Phaedo* (46c7-e6):

Ταῦτ' οὖν πάντα ἔστιν τῶν συναιτίων οἷς θεὸς ὑπηρετοῦσιν χρῆται τὴν τοῦ ἀρίστου κατὰ τὸ δυνατόν ιδέαν ἀποτελῶν· δοξάζεται δὲ ὑπὸ τῶν πλείστων οὐ συναιτία ἀλλὰ αἷτια εἶναι τῶν πάντων, ψύχοντα καὶ θερμαίνοντα πηγνύντα τε καὶ διαχέοντα καὶ ὅσα τοιαῦτα ἀπεργαζόμενα. Λόγον δὲ οὐδένα οὐδὲ νοῦν εἰς οὐδὲν δυνατὰ ἔχειν ἐστὶν τῶν γὰρ ὄντων ὧς νοῦν μόνῳ κτᾶσθαι προσήκει, λεκτέον ψυχὴν—τοῦτο δὲ ἀόρατον, πῦρ δὲ καὶ ὕδωρ καὶ γῆ καὶ ἀήρ σώματα πάντα ὁρατὰ γέγονεν—τὸν δὲ νοῦ καὶ ἐπιστήμης ἐραστὴν ἀνάγκη τὰς τῆς ἔμφρονος φύσεως αἰτίας πρώτας μεταδιώκειν, ὅσαι δὲ ὑπ' ἄλλων μὲν κινουμένων, ἕτερα δὲ ἐξ ἀνάγκης κινούντων γίνονται, δευτέρας. Ποιητέον δὴ κατὰ ταῦτα καὶ ἡμῖν· λεκτέα μὲν ἀμφότερα τὰ τῶν αἰτιῶν γένη, χωρὶς δὲ ὅσαι μετὰ νοῦ καλῶν καὶ ἀγαθῶν δημιουργοὶ καὶ ὅσαι μονωθεῖσαι φρονήσεως τὸ τυχὸν ἄτακτον ἐκάστοτε ἐξεργάζονται.

Now, all these things are among the things which are *co-responsible*, which God uses as sub-ordinates as he accomplishes the form of what is best according to what is possible. It's believed by most people that they're not co-responsible but *responsible* for all things, freezing, heating, solidifying, liquefying and bringing about all things of this sort. But they're not capable of possessing any reason or intelligence for anything. Of the things in existence, the only one which one ought to say is appropriate for possessing intelligence is soul. This is invisible, whereas fire, water, earth and air are all visible bodies. Necessarily a lover of intelligence and understanding pursues the reasons for rational nature as 'primary', and all those which come into being by some things which are moved, and which move other things through necessity, as 'secondary'. We too ought to proceed on this basis: one ought to state *both* the kinds of reasons, separating those which are demiurges of beautiful and good things with the help of intelligence and those which, having been deprived of rationality, bring about a chance and un-arranged outcome on each occasion.

Interpreters agree that this passage looks back to Socrates' disappointment with the natural philosophers' explanations in the *Phaedo*; the question is to establish in what way Timaeus builds on Socrates' understanding and how, if at all, he departs from it. For example, Thomas

K. Johansen, writing against some earlier commentators who simply identified the two passages¹⁸, has argued that there is a terminological discrepancy between them (2004: 104):

Note first a difference in terminology between the *Phaedo* and the *Timaeus*. The *Phaedo* said that it would be ‘completely absurd’ to call the necessary conditions ‘*aitiai*’. Yet Timaeus not only calls his necessary processes ‘*sunaitia*’. He also says that the necessary processes are one of two kinds (*genê*) of *aitia* (46d6-e6). So Timaeus does what the *Phaedo* forbade: he calls the necessary processes *aitiai*.

However, unfortunately I think the second sentence of this quotation contains a textual error. Socrates in the *Phaedo* does not say that it is absurd to describe the necessary conditions as *aitiai* (the feminine plural of the noun *aitia*). Rather, he says that it is absurd to describe the bones, sinews and sounds in Socrates’ example of sitting and conversing in prison, or the air and aether in Anaxagoras’ natural philosophy, as *aitia* (the neuter plural of the adjective *aitios*; *Phd.* 99a4).¹⁹ We therefore need to see whether Plato differentiates between the adjective *aitios* and the noun *aitia* in the *Phaedo* and in the *Timaeus*, and if so how, before considering the implications of this for our understanding of the relationship between the two works.

Let us start with the *Phaedo*. Commentators have debated whether there is a meaningful difference between *aitios* and *aitia* in the *Phaedo*, as well as how this difference should be understood.²⁰ The word *aitios* (+ genitive) literally means ‘responsible (for or over something)’, both when it appears as an adjective or together with the neuter article to make a substantive (*to aition*). Conversely, the word *aitia* is much more difficult to translate, and it is variously rendered as ‘reason’, ‘cause’, ‘explanation’, ‘mode of explanation’, or ‘causal

¹⁸ See, e.g., Taylor 1928: 303, cited at Johansen 2004: 103 n. 13 and 104 n. 17.

¹⁹ The same confusion appears to be made in Mueller 1998: 87-88, who writes that the *sunaitia* (rather than the secondary *aitiai*) change and are necessarily changed by others and on their own produce randomly and in a disorderly way (cf. 46e1-2). Cf. also Johansen 2020: 27-29.

²⁰ See Frede 1987: 128-130, Mueller 1998: 83 n. 45, Sedley 1998: 115 n. 1, Ledbetter 1999, Politis 2010: 63 n. 2, and Vázquez 2020: 83. Wolfsdorf 2005, which argues *against* any significant difference between the two terms, frustratingly omits the *Phaedo* from his survey of the words’ usage in Plato, even though it is arguably in this context that the terms’ relationship is most open to scrutiny.

account’.²¹ My suggestion is that our translation of the word *aitia* should be guided by our understanding of its relationship to its cognate *aitios*. The word *aitios* appears seven times within Socrates’ discussion of Anaxagoras (*Phd.* 97b-99d).²² Of these, the two most notable occasions are Socrates’ remark that, according to his initial hearing of Anaxagoras’ book, intelligence is responsible (*aitios*) for all things (*Phd.* 97c) and his criticism that Anaxagoras’ explanations show an inability to differentiate that which is responsible in reality and that without which the thing responsible wouldn’t ever be responsible (*Phd.* 99b). Let us substitute the adjective *aitios* with the noun *aitia* in these two instances to determine whether there is any meaningful difference between them. An *aitia* of or for X (+ genitive), as Socrates states, indicates *why* (*dia tí*) X comes into being and is destroyed and exists (*Phd.* 96a, cf. 97c). So, if intelligence is an *aitia* (instead of *aitios*) for all things, intelligence is why all things come into being and are destroyed and exist. Socrates glosses the view that intelligence is *aitios* for all things as a satisfactory *aitia* (*Phd.* 97c). So, if *aitios* is synonymous with *aitia*, Socrates is glossing intelligence (which is an *aitia*) as a satisfactory *aitia*. But how can something which is an *aitia* also *be* a satisfactory *aitia*? The point seems to risk tautology and thus be explanatorily underdetermined, especially as he goes on to say that this *aitia* – namely that intelligence is *aitios* in a general sense – will allow a human being to consider nothing other than the greatest and the best (*Phd.* 97d). Consider also the second key usage (*Phd.* 99b). If *aitios* and *aitia* are non-meaningfully different, Anaxagoras confuses that which is the *aitia* in reality with that without which the *aitia* would never be an *aitia*. But Socrates’ illustration of Anaxagoras’ mistake shows that he does not confuse something which is in fact the *aitia* with something which is not (at all) an *aitia* (but which is merely necessary present for the *aitia*). Rather, Socrates objects that Anaxagoras ascribes the reasoning to certain things, i.e. he formulates *aitiai* out of them, but he neglects to give the *as-true aitiai*, and this by confusing what is and is not *aitios*. Therefore, *aitios* and *aitia* *must* be different from one another, if Socrates’ criticism against Anaxagoras is to stand as coherent as a whole.

How should we understand the difference between them? As I have already argued, the status of being *aitios* (but not the status of being an *aitia*) implies the possession of

²¹ For contrasting analyses of the *Phaedo*’s autobiographical passage which translate *aitia* as ‘reason’ and ‘cause’ respectively, see Vlastos 1969 and Sedley 1998. For other contributions to this debate, see Frede 1987: 125-150, Hankinson 2001: 84-124, Kelsey 2004, Sharma 2009, Politis 2010, and Bailey 2014.

²² *Phd.* 97c2, c4, 99a4, b3 (*bis*), b4, b6.

intelligence, whereas the status of being mistakenly *aitios* implies the non-possession of (and inability to possess) intelligence. Further, knowing what is *aitios* for an explanandum X involves knowing what are the as-true *aitiai* for X, whereas having a mistaken belief of what is *aitios* for X involves ascribing the reasoning to things which do not make up the as-true *aitiai* for X. This suggests, firstly, that one's acquisition of the *aitiai* is determined by one's recognition of what is *aitios*, rather than the other way around. Secondly, it indicates that, since the status of being *aitios* entails intelligence, the as-true *aitiai* will be the outcome of intelligence, in opposition to the additional *aitiai* which will be the outcome of non-intelligent but necessarily present and bodily factors. The question then becomes how to fit the language of causality into this twofold explanatory scheme.²³ Should we identify the 'cause' of the explanandum X with that which is responsible for X, which is intelligent (*aitios*), or with the set of factors which explain X (meaning why X comes into being and is destroyed and exists) (*aitiai*)? Although it seems that 'cause' in English can serve both functions, I propose to limit the language of causality to its use in denoting causal *agency* and to understand as a 'cause' only that which is responsible (*aitios*) for a given explanandum. On this view, the point is not so much that it is wrong to use 'cause' of *aitiai*, as that the *aitiai* do not (standardly²⁴) denote the causal *agents*. Further, since causality, understood as causal agency, is expressed in terms of intelligent action, as we have seen, we can use the word 'reason' to denote the respective *aitiai*.²⁵ Hence, our translations of *aitios* and *aitiai* are co-ordinated in a roughly similar way to the way that a 'cause', meaning a causal agent, performs actions on certain grounds, which are analysable as 'reasons'.

Now to the *Timaeus*. Timaeus says in 46c-e that a majority of natural philosophers regards things which are in fact *co*-responsible (*sunaitia*) as responsible (*aitia*) in a general sense, and this insofar as they bring about various natural processes, such as changes of

²³ Commentators often note that Plato's terminology of cause and explanation is drawn from a legal, and specifically judicial, context, in which the accused party is responsible for (*aitios*) a certain action X and the charge is the corresponding *aitia* (see LSJ I, which give as translations 'responsibility' in the sense of 'guilt' or 'blame', 'accusation' and 'charge'). Note, however, that even in this context the *aitia* can denote both the accused party's *reasons* for doing X and the *accusations* that the accused party has done X, which point to its broader semantic scope.

²⁴ On an exception to this, see n. 27 below.

²⁵ The word 'reason' in English is perhaps only slightly less difficult to define than 'cause'. For one influential account of causes and reasons from contemporary philosophy of action, according to which a cause is 'the primary reason for an action', see Davidson 1963.

temperature (freezing and heating) and changes of state (solidifying and liquefying).²⁶ But the things which are truly *sunaitia* are unable to possess reason or intelligence (*nous*), in opposition to *soul* which alone possesses intelligence. Timaeus also says here that soul is invisible, versus fire, earth, air and water, which are visible. This suggests that, generally speaking, soul is the thing which is *aitios* in reality, versus the four primary bodies which are *sunaitia*. Next, he says that an exemplary natural philosopher will pursue the *aitiai* for rational nature as ‘primary’ (*prôtai*), while the *aitiai* which move and are moved by others from necessity will be pursued as ‘secondary’ (*deuterai*). Then he applies this to his own account, prescribing that one state *both* kinds of *aitiai* but that one discriminate the *aitiai* which are demiurges of good and beautiful things with the help of intelligence and the *aitiai* which bring about a random and disorderly outcome each time.²⁷ In a later passage, he returns to this opposition between two kinds of *aitiai* (68e6-69a5):

διὸ δὴ χρὴ δὴ αἰτίας εἶδη διορίζεσθαι, τὸ μὲν ἀναγκαῖον, τὸ δὲ θεῖον, καὶ τὸ μὲν θεῖον ἐν ἅπασιν ζητεῖν κτήσεως ἕνεκα εὐδαίμονος βίου, καθ’ ὅσον ἡμῶν ἡ φύσις ἐνδέχεται, τὸ δὲ ἀναγκαῖον ἐκείνων χάριν, λογιζόμενον ὡς ἄνευ τούτων οὐ δυνατὰ αὐτὰ ἐκεῖνα ἐφ’ οἷς σπουδάζομεν μόνον κατανοεῖν οὐδ’ αὖ λαβεῖν οὐδ’ ἄλλως πως μετασχεῖν.

Wherefore one should distinguish two kinds of reason, the necessary and the divine. [One should] seek the divine [kind] in all things for the purposes of obtaining a prosperous life, to the extent that our nature allows. And [one should seek] the necessary [kind] for the sake of those, calculating that, without these, those for which we strive are not themselves able to apprehend alone, nor in turn to seize, nor to have a share of in any way at all.

I take it that the ‘divine kind of *aitia*’ mentioned in this passage can be identified with the ‘primary’ *aitiai* at 46c-e, while the ‘necessary kind of *aitia*’ corresponds to the ‘secondary’ *aitiai* (as well as to ‘the kind of wandering *aitia*, in whose nature it is to move’, which is

²⁶ On the opposition between *aitios* and *sunaitios*, cf. also *Sts.* 281c-e and 287b-e.

²⁷ Here, the *aitiai* (rather than the *aitia*) are described as ‘demiurges’, which might seem to undermine my claim above that causal agency is denoted by the adjective *aitios*, while the respective grounds or reasons are denoted by the noun *aitiai*. However, I take it that the reference to demiurgy in this passage is metaphorical (via personification). Cf. 40c2 and 59a5, which both use *dēmiourgos* in the same transferred sense, and compare (perhaps) the talk of *logoi* as *exêgêtai* at 29b4-5, on which see §5 below.

introduced at the beginning of Timaeus' account of necessity; 48a6-7).²⁸ Accordingly, Timaeus is saying that the divine *aitiai*, which belong to rational nature and produce beautiful results thanks to intelligence, are the ones which can give us happiness in life, whereas the necessary *aitiai*, which move and are moved and bring about randomness and disorder, are pursued for the sake of understanding the divine *aitiai*. So, just as Socrates said in the *Phaedo* (96a), the *Timaeus* emphasises that the ultimate concern of the natural philosopher are the *aitiai*, rather than what is and is not *aitios*.

How do the two kinds of *aitiai* relate to Timaeus' distinction between responsibility and co-responsibility? Although this point is not spelled out in absolute terms, it seems implicit from 46c-e that, if soul is responsible in a general sense, soul will form the basis of the primary and divine *aitiai*, whereas the four primary bodies, which are *sunaitia*, will form the basis of the secondary and necessary *aitiai*. This is also supported by Timaeus' example of sight or seeing (*opsis*), the explanation of which sandwiches this passage (45b-46c, 46e-47c).²⁹ Timaeus begins by explaining that sight occurs from a coming-together between the fire which resides in our eyes and the fire which emanates from the sun during day (45b-d). Then, after having considered the case of dreams at night and the sight of reflections, he refers back to the preceding discussion in his introduction of the *sunaitia* (46c, at c7). This suggests that what is co-responsible (*sunaitios*) for sight is the optical fire which has lain at the centre of Timaeus' explanation until this point. It also implies that the explanation of the optical fire's contact with the diurnal fire constitutes the secondary or necessary *aitia* for why we see. What about what is *aitios* and the primary or divine *aitia*? After recommencing his example, Timaeus says that sight is responsible for (*aitia*, from the adjective *aitios*, at 47a2) the greatest benefit to human beings, which turns out to be philosophy, as approached from the study of the heavenly movements (47a-b). But, to say that sight is ultimately responsible for philosophy does not yet tell us what is responsible for (*aitios*) sight. Here are the seemingly crucial lines (47b5-c4):

ἀλλὰ τούτου λεγέσθω παρ' ἡμῶν αὕτη ἐπὶ ταῦτα αἰτία, θεὸν ἡμῖν ἀνευρεῖν
δωρήσασθαί τε ὄψιν, ἵνα τὰς ἐν οὐρανῷ τοῦ νοῦ κατιδόντες περιόδους χρησαίμεθα

²⁸ On the relationship between necessity and 'the kind of wandering reason', see also Chapter 3.3.1 below.

²⁹ On the issues considered in the remainder of this paragraph, cf. Johansen 2004: 106-110.

ἐπὶ τὰς περιφορὰς τὰς τῆς παρ' ἡμῖν διανοήσεως, συγγενεῖς ἐκείναις οὕσας, ἀταράκτοις τεταραγμένας, ἐκμαθόντες δὲ καὶ λογισμῶν κατὰ φύσιν ὀρθότητος μετασχόντες, μιμούμενοι τὰς τοῦ θεοῦ πάντως ἀπλανεῖς οὕσας, τὰς ἐν ἡμῖν πεπλανημένας καταστησαίμεθα.

But, let it be said among us that *it* is responsible for *this* to *these* ends: God discovered and gave to us sight, in order that, by observing the revolutions of intelligence in heaven, we might use [them] to direct the revolutions of our own thought, which are kindred with them, although they are un-disturbed and ours are disturbed, and that, after learning and by participating in the straightness of their calculations according to nature, by imitating the revolutions of God, which are wholly un-wandering, we might establish the wandering [revolutions] in ourselves.

The first clause of this sentence seems ambiguous.³⁰ What is Timaeus saying is responsible for (*aitia*, from the adjective *aitios*) what? I take it that Timaeus is repeating his earlier point at 47a but adding explanatory detail to it concerning the reasons for sight. On this construal, 'it' (*autê*), i.e. 'sight' (*opsis*), is responsible for 'this' (*toutou*), i.e. the greatest good for human beings (meaning philosophy), 'to these ends' (*epi tauta*), i.e. the ends of assimilating our psychic revolutions to those of the heavens.³¹ This interpretation also seems to align naturally with the following accusative + infinitive construction, in which Timaeus says that God has given us sight (*opsis*) in order that (*hina*) we might arrange the wandering revolutions of our intellect by observing (*katidontes*) the intelligent revolutions in the cosmos. Accordingly, this passage still does not state explicitly what is truly responsible for (*aitios*) and what are the primary or divine *aitiai* of sight. However, it does give us sufficient resources to be able to construct an explanatory picture. The real reason that we see is not because of the kinship between the optical and the diurnal fire, but in order that we can do philosophy, which is the greatest good for humankind. So, the fact that seeing leads to philosophy by synchronising our revolutions with the revolutions in heaven constitutes the primary or divine *aitia* for sight.

³⁰ Cf. Johansen 2004: 107-108, who notes various translations at p. 107, n. 22.

³¹ This understanding seems parallel to that of Cornford, who translates '[f]or our part, rather let us speak of eyesight as the cause of this benefit, for these ends'. He also writes in a footnote that *toutou* refers to 'philosophy' (comparing, helpfully, the *touto* at 47b3) and that *epi tauta* looks forward to the remainder of the sentence (1937: 158 n. 2). Johansen (2004: 108) seems to take *aitia* at 47b5 substantively (perhaps on the assumption that *aitios* and *aitia* are used synonymously) and understands it as 'the good because of which the gods gave [eyes] to us', but he considers the rendition suggested here as an alternative (p. 108, n. 23).

Further, what is truly responsible for sight is not the optical fire but our intelligence, which is kindred with – and so potentially assimilable to – the intelligence of the cosmos. Hence, soul is properly *aitios* for sight, insofar as our intelligence is housed in our immortal soul. Timaeus' distinction between the two kinds of *aitiai* is thus closely co-ordinated with his differentiation between two levels of responsibility.

This confirms that, also in the *Timaeus*, the terms *aitios* and *aitia* are not being used synonymously with one another. For, if they were being used synonymously, that which is *aitios* would be interchangeable with the primary or divine *aitia*, whereas in fact Timaeus explains that what is *aitios* makes up the primary or divine *aitiai*, whereas what is *sunaitios* makes up the secondary or necessary *aitiai*. The *Timaeus* thus seems to differentiate between *aitios* and *aitia* in the same way that Socrates did in the *Phaedo*.

What implications does this have for our understanding of the relationship between the two works? I want to argue that it allows us to draw a closer connection between the *Phaedo* and the *Timaeus* than Johansen admitted, whilst also absorbing his initial point that the two contexts are not straightforwardly identical. To begin with, I take it that there is no deviation but a terminological upgrade between the two works in their use of the language of cause and explanation. Secondly, Johansen argued on the basis of his understanding of *aitios* and *aitia* that, whereas Socrates' reference to 'that... without which what is responsible wouldn't ever be responsible' denotes a *merely* necessary condition, on the assumption that it does not contribute in any way to the explanation, Timaeus' reference to that which is co-responsible denotes an *instrumentally* necessary condition, or what can also be called a 'contributory cause' (*sunaitios*).³² However, I think it is incorrect to say that the things which are wrongly responsible in the *Phaedo* – such as air and aether (in Anaxagoras' natural philosophy) or bones and sinews (in Socrates' example of sitting in prison) – are merely necessary in the sense that they do not relate *at all* to the explanation. As we have seen, Socrates' point is not that Anaxagoras does not formulate any reasons at all, but that he neglects to mention the *as-true* reasons by failing to recognise what is in reality responsible. Moreover, the bones and sinews must contribute to the explanation of Socrates' sitting in prison more than, say, the airs and sounds, which contribute in a corresponding way to the

³² See 2004: 103-106.

explanation of Socrates' conversation. Similarly, in the *Timaeus* – to use Johansen's example – bone is a 'contributory cause' (*sunaitios*) of the positioning of the marrow (73e-74b), but I take it that this is bone as a whole, rather than only the hardness of bone (which is protective of the marrow) and not its brittleness and inflexibility (even though these features do not contribute directly to the explanation). For, generally speaking, the things which are co-responsible are the four primary bodies (of which bone is an admixture), rather than any special configuration of them. This allows us to narrow – and perhaps dissolve – the gap between what Johansen regarded as a merely necessary and an instrumentally necessary condition.

Thirdly, however, I think that Johansen is correct to draw attention to the distinction between the *Phaedo* and the *Timaeus*' accounts of necessity; I only think that this difference manifests itself not in its understanding of necessary *causality* (*aitios*, *sunaitios*) but in its valuation of necessary *explanation* (*aitiai*). In the *Phaedo*, after Socrates has expressed his enthusiasm for Anaxagoras' view that intelligence is responsible in a general sense, he says that, if Anaxagoras would explain how the earth was better to be in the middle of the cosmos, he would prepare 'that I would no longer desire another kind of reason (*aitias allo eîdos*)' (*Phd.* 98a1-2). Similarly, in his criticism against Anaxagoras, he implies that Anaxagoras has neglected to state the *as-true* reasons for cosmic phenomena (*Phd.* 98e1). This implied contrast between the reasons which Anaxagoras did formulate and the reasons which he omitted to mention anticipates the *Timaeus*' more systematic opposition between the 'primary' and 'divine' and 'secondary' and 'necessary' kinds of reason. But *Timaeus* also places greater weight than Socrates on the value of necessary reasoning for a full explanatory account of the phenomena. For instance, he says that *both* kinds of reasons ought to be stated (46d), in contrast to Socrates who seemed only eager to learn about intelligence-based or value-laden reasoning. *Timaeus* also asserts that, without the necessary reasons, it is not possible to apprehend, seize or share in any understanding of the divine reasons in any way (69a).³³ This difference can also help us to recognise the wider shortcomings of Anaxagoras'

³³ Johansen (2004: 104) argues that the *Timaeus* instructs the intelligent reasons to be discovered *first* and the necessary reasons to be discovered *second*, taking the force of *prôtos* and *deuteros* at 46c-e to denote a temporal order of discovery. However, I take it that the adjectives do not point to a temporal sequence but a two-tier hierarchy of explanation. There is nothing which stops the natural philosopher from discovering the necessary reasons first, even though he is pursuing them as secondary.

natural philosophy to Plato as a whole. From the *Phaedo* alone one might acquire the impression that Anaxagoras made no positive contribution to the development of Plato's natural-philosophical views. But, as I have argued in this and the previous sections, Socrates' criticism of Anaxagoras is centred less on what he said than what he left out. The problem was that Anaxagoras promised much but delivered little. To put the point in Timaeian terms, Anaxagoras ventured to give an account of intelligence (*nous*), but in fact he gave an account of necessity (*anagkê*). Still, necessity is one of the two major forces out of which our cosmos, having been mixed together, has been generated (47e-48a). Hence, it was left to Timaeus to provide a story of intelligence, and so be the teacher of the reason concerning all things that Socrates had expected Anaxagoras to be (*Phd.* 97c), but that he was not.

4. The method and metaphysics of Socrates' 'second voyage' (99d-102b³⁴)

I turn now from the *Timaeus* back to the *Phaedo* and the second part of Socrates' autobiography. After Socrates has expressed his disappointment with the natural philosophers' explanations, he offers to Cebes another way to proceed (99c8-d3):

ἐπειδὴ δὲ ταύτης ἐστερήθην καὶ οὐτ' αὐτὸς εὐρεῖν οὔτε παρ' ἄλλου μαθεῖν οἷός τε ἐγενόμην, τὸν δεύτερον πλοῦν ἐπὶ τὴν τῆς αἰτίας ζήτησιν ἢ πεπραγμάτευμαι βούλει σοι, ἔφη, ἐπιδείξιν ποιήσωμαι, ὧς Κέβης;
Ὑπερφυῶς μὲν οὖν, ἔφη, ὡς βούλομαι.

'But since I was deprived of this [reason, sc. 'the reason of this sort' at 99c7] and was able to neither find [it] out myself nor learn [it] from anyone else, would you like me', he said, 'to give you a display of the "second voyage" in my inquiry into the reason which I have pre-occupied myself with, Cebes?'
'Oh exceedingly I'd like that', he said.

Here we need to clarify the identity of the reasons (*aitiai*) which Socrates mentions as the target of his investigations. Firstly, as I have already argued, the reason of which he was

³⁴ All un-marked Stephanus references in this section are to the *Phaedo*.

‘deprived’ and which he has been unable to learn about is the reason that intelligence is responsible in a general sense and that all things have the power to be positioned in the best-possible way (97c-d, 99c). Consequently, the *second* reason which he alludes to – and which the ‘second voyage’ represents an inquiry into – cannot be this reason. Rather, this must be the reason which he referred to at the beginning of his autobiography, namely ‘the reason concerning generation and corruption as a whole’ (95e). This suggests that Socrates’ interest in natural philosophy constituted a ‘first voyage’ into the reason concerning generation and corruption as a whole, whereas the ‘second voyage’ which is to follow constitutes an inquiry into this *same* explanandum.³⁵ I will come back to this aspect later, after we have clarified the nature of this ‘second voyage’ and the explanatory goal it takes as its destination.

Now Socrates commences his display of his ‘second voyage’ in inquiring into the reason (99d4-100a3):

Ἔδοξε τοίνυν μοι, ἧ δ’ ὅς, μετὰ ταῦτα, ἐπειδὴ ἀπειρήκη τὰ ὄντα σκοπῶν, δεῖν εὐλαβηθῆναι μὴ πάθοιμι ὅπερ οἱ τὸν ἥλιον ἐκλείποντα θεωροῦντες καὶ σκοπούμενοι πάσχουσιν· διαφθείρονται γάρ που ἔνιοι τὰ ὄμματα, ἐὰν μὴ ἐν ὕδατι ἢ τινι τοιούτῳ σκοπῶνται τὴν εἰκόνα αὐτοῦ. Τοιοῦτόν τι καὶ ἐγὼ διανοήθην, καὶ ἔδεια μὴ παντάπασιν τὴν ψυχὴν τυφλωθεῖν βλέπων πρὸς τὰ πράγματα τοῖς ὄμμασι καὶ ἐκάστη τῶν αἰσθήσεων ἐπιχειρῶν ἄπτεσθαι αὐτῶν. Ἔδοξε δὴ μοι χρῆναι εἰς τοὺς λόγους καταφυγόντα ἐν ἐκείνοις σκοπεῖν τῶν ὄντων τὴν ἀλήθειαν. ἴσως μὲν οὖν ᾧ εἰκάζω τρόπον τινὰ οὐκ ἔοικεν· οὐ γὰρ πάνυ συγχωρῶ τὸν ἐν λόγοις σκοπούμενον τὰ ὄντα ἐν εἰκόσι μᾶλλον σκοπεῖν ἢ τὸν ἐν ἔργοις.

‘So I decided after this’, he said, ‘because I’d rejected inspecting the things in existence, that I ought to take care that I didn’t suffer what those who observe and examine the sun’s eclipse suffer. For I guess some damage their eyes unless they examine the image of it in water or something like that. I considered something of that kind, and feared lest I completely blind my soul by looking towards the objects with my eyes and trying to catch hold of them with each of my senses. I decided that I

³⁵ The reference to the ‘second voyage’ (*ho deuterios plous*) at 99d has occasioned much debate. As commentators have noted, the expression carries a proverbial resonance, since it denotes a seafaring expedition taken using oars and in the absence of a favourable wind, versus an expedition which is taken with a fair wind (a ‘first voyage’). See, especially, Kanayama 2000: 87-95 and Martinelli Tempesta 2003. Given this association, Socrates is suggesting that his alternative approach requires greater labour and individual ingenuity than the approach of the natural-philosophical tradition, an aspect which fits with the character of the ‘second voyage’ as a whole (thanks go to Andy Gregory for this idea). I see no reason to take the allusion ironically.

should take refuge in accounts and inspect the truth of the things in existence in them. Now perhaps the kind of approach which I'm imagining isn't likely. For I'm not wholly convinced that the [approach] which examines the things in existence in accounts inspects them in images more than the [approach] which examines them concretely (or: in deeds).'

In this passage Socrates describes how he reacted to his failure to learn about 'the things in existence' (*ta onta*) from the natural-philosophical tradition. Firstly, he expresses concern that, in the same way that natural philosophers damage their eyes by observing the sun directly during an eclipse³⁶, so too he might blind his soul by observing the objects and trying to apprehend them via the senses. This suggests that his alternative approach will assign a limited role to sense-perception, in opposition to the prevailing natural-philosophical method. Secondly, he declares that he will take refuge in accounts³⁷ (*logoi*) and 'inspect the truth of the things in existence in them'. This suggests that, whereas his previous inquiries had focussed on the objects of reality directly, now he will place a greater focus on their *truth* (*alêtheia*) by formulating accounts about them. Thirdly, Socrates raises the doubt that 'perhaps the kind of approach which he is imagining isn't likely'. Then he explains this (*gar*) by acknowledging his uncertainty whether his approach (*tropos*), which will examine the things in existence by means of accounts, will make use of images (*eikones*) any more than the prevailing natural-philosophical approach, which examines the same objects directly (i.e. through *erga*). Although the exact nature of this doubt seems quite enigmatic within this part of the *Phaedo*, in the next section I will argue that it can be better understood by cross-reference with the *Timaeus*.

Next Socrates continues to explain how his alternative approach is supposed to work (100a3-b9):

³⁶ Although this point does not seem to have been noted in the standard commentaries on the *Phaedo*, the reference to a solar eclipse might be a deliberate allusion to Anaxagoras, who acquired fame from his prediction of them. See Graham-Hintz 2007.

³⁷ The term *logoi* at 99e5 is sometimes translated as 'definitions' or 'theories'. I defend 'accounts' as roughly the force of the term based on what Socrates goes on to say: since a hypothesised *logos* will be constituted of both 'true' and 'not true' elements, the *logoi* will be composite in nature, versus a 'definition' which is distinguished by its unitary nature. See also §5 below.

ἀλλ' οὖν δὴ ταύτη γε ὥρμησα, καὶ ὑποθέμενος ἐκάστοτε λόγον ὃν ἂν κρίνω ἔρρωμενέστατον εἶναι, ἃ μὲν ἂν μοι δοκῇ τούτῳ συμφωνεῖν τίθημι ὡς ἀληθῆ ὄντα, καὶ περὶ αἰτίας καὶ περὶ τῶν ἄλλων ἀπάντων [ὄντων], ἃ δ' ἂν μή, ὡς οὐκ ἀληθῆ. Βούλομαι δέ σοι σαφέστερον εἰπεῖν ἃ λέγω· οἶμαι γάρ σε νῦν οὐ μανθάνειν.

Οὐ μὰ τὸν Δία, ἔφη ὁ Κέβης, οὐ σφόδρα.

Ἀλλ', ἦ δ' ὅς, ὥδε λέγω, οὐδὲν καινόν, ἀλλ' ἅπερ αἰεὶ τε ἄλλοτε καὶ ἐν τῷ παρεληλυθότι λόγῳ οὐδὲν πέπαυμαι λέγων. ἔρχομαι [γὰρ] δὴ ἐπιχειρῶν σοι ἐπιδείξασθαι τῆς αἰτίας τὸ εἶδος ὃ πεπραγμάτευμαι, καὶ εἶμι πάλιν ἐπ' ἐκεῖνα τὰ πολυθρύλητα καὶ ἄρχομαι ἀπ' ἐκείνων, ὑποθέμενος εἶναι τι καλὸν αὐτὸ καθ' αὐτὸ καὶ ἀγαθὸν καὶ μέγα καὶ τᾶλλα πάντα· ἃ εἴ μοι δίδως τε καὶ συγχωρεῖς εἶναι ταῦτα, ἐλπίζω σοι ἐκ τούτων τὴν αἰτίαν ἐπιδείξειν καὶ ἀνευρήσειν ὡς ἀθάνατον [ἢ] ψυχή.

'But I pressed on in this way. By hypothesising on each occasion [an] account which I would choose to be the most steadfast, I posit the things which would seem to be in harmony with this [account] as being true, both concerning [the] reason and concerning all the other things [in existence], and those which aren't [in harmony with it] as not true. I want to say more clearly to you what I mean. For I think that at the moment you don't understand.'

'Not at all', said Cebes, 'not very well.'

'But', he said, 'I mean this: nothing novel, but that which I've never stopped talking about both at other times and in our preceding discussion. For I'm proceeding on in my attempt to display to you the kind of reason which I've been pre-occupied with. I'll go back to those much-talked-about things and begin from them, hypothesising that beautiful and good and large and all the others are something in and of themselves. If you grant me this and are convinced that these things exist, I hope from them to display to you the reason and to find out how the soul's immortal.'

Socrates' approach involves a method of hypothesis.³⁸ Although there are many complications about this method, what is clear is that its central use in the *Phaedo* is to hypothesise the existence of separate Forms. This is shown from the fact that, after Cebes has admitted not being able to follow Socrates' initial explanation of the use of hypotheses, Socrates immediately refers to the Forms and says that he will begin from them, 'hypothesising (*hupothemenos*) that beautiful and good and large and all the others are something in and of themselves'. This suggests that the account (*logos*) which will be

³⁸ The reference to hypotheses recalls Socrates' illustration of a hypothetical operation used in geometry in the *Meno* (86e-87b) and mathematicians' use of hypotheses in the *Republic* (510c-511b). In a later chapter, I argue that a hypothetical procedure is also present in the *Timaeus*, as it was highlighted by a group of early Platonists; see Chapter 4.3 and 6.4. For discussion of the method of hypothesis in the *Phaedo*, see Bedu-Addo 1979, Kanayama 2000, Bailey 2005 and Benson 2015, chs. 3, 4, and 7.

hypothesised as the most steadfast on this occasion is the hypothesis of separate Forms. The reference to his ongoing³⁹ display of ‘the kind of reason I’ve been pre-occupied with’ also serves as a reminder of the ultimate target of the investigation, i.e. the reason concerning generation and corruption as a whole. Thus, the hypothesis of separate Forms will serve as a starting-point (*archê*) for displaying this reason. Then, after having displayed the reason, Socrates will proceed to the question of the immortality of the soul.

It is at this point that, with Cebes’ agreement, Socrates eventually displays the reason (100c1-e4):

Ἀλλὰ μὲν, ἔφη ὁ Κέβης, ὡς δίδοντας σοι οὐκ ἂν φθάνοις περαίνων. Σκόπει δὴ, ἔφη, τὰ ἐξῆς ἐκείνοις ἐάν σοι συνδοκῇ ὥσπερ ἐμοί. Φαίνεται γάρ μοι, εἴ τί ἐστιν ἄλλο καλὸν πλην αὐτὸ τὸ καλόν, οὐδὲ δι’ ἑν ἄλλο καλὸν εἶναι ἢ διότι μετέχει ἐκείνου τοῦ καλοῦ· καὶ πάντα δὴ οὕτως λέγω. Τῇ τοιᾷδε αἰτίᾳ συγχωρεῖς; Συγχωρῶ, ἔφη.
Οὐ τοίνυν, ἦ δ’ ὅς, ἔτι μανθάνω οὐδὲ δύναμαι τὰς ἄλλας αἰτίας τὰς σοφὰς ταύτας γινώσκειν· ἀλλ’ ἐάν τις μοι λέγῃ δι’ ὅτι καλόν ἐστιν ὅτιοῦν, ἢ χρῶμα εὐανθὲς ἔχον ἢ σχῆμα ἢ ἄλλο ὅτιοῦν τῶν τοιούτων, τὰ μὲν ἄλλα χαίρειν ἐγώ,—ταράττομαι γὰρ ἐν τοῖς ἄλλοις πᾶσι—τοῦτο δὲ ἀπλῶς καὶ ἀτέχνως καὶ ἴσως εὐήθως ἔχω παρ’ ἐμαυτῶ, ὅτι οὐκ ἄλλο τι ποιεῖ αὐτὸ καλόν ἢ ἡ ἐκείνου τοῦ καλοῦ εἴτε παρουσία εἴτε κοινωνία εἴτε ὅπη δὴ καὶ ὅπως προσαγορευομένη⁴⁰. οὐ γὰρ ἔτι τοῦτο δισχυρίζομαι, ἀλλ’ ὅτι τῷ καλῷ πάντα τὰ καλὰ [γίνεται] καλά. Τοῦτο γάρ μοι δοκεῖ ἀσφαλέστατον εἶναι καὶ ἐμαυτῷ ἀποκρίνασθαι καὶ ἄλλῳ, καὶ τούτου ἐχόμενος ἡγοῦμαι οὐκ ἂν ποτε πεσεῖν, ἀλλ’ ἀσφαλὲς εἶναι καὶ ἐμοί καὶ ὁπωῦν ἄλλῳ ἀποκρίνασθαι ὅτι τῷ καλῷ τὰ καλὰ [γίνεται] καλά· ἢ οὐ καὶ σοὶ δοκεῖ;
Δοκεῖ.

‘But of course I grant you them’, said Cebes, ‘so don’t hesitate to continue.’ ‘Then inspect whether the things which follow from them also seem good to you, as they do to me’, he said. ‘For it appears to me that, if anything else is beautiful besides

³⁹ Ravi Sharma (2015) has argued convincingly against most translators that the words *erchomai* [*gar*] *dê epicheirôn soi epideixasthai* signal a new *phase* in Socrates’ display of the reason, rather than the beginning of this display as such. However, Sharma deduces from this that the display of the reason begins already at 99d, whereas I think that what begins there is Socrates’ display of his ‘second voyage’, understood as his *method* or *approach* for *inquiring* into the reason. Note that Socrates says at 100b3-4 that he is in the process of displaying *the kind of reason* (*tês aitias to eidos*) which he has been pre-occupied with, which is distinguishable from his display of the reason itself, and at 100b8 that he *hopes* (*elpizô*) to display the reason, which implies that he has not displayed it yet.

⁴⁰ The reading of *prosaagoreuomenê* at 100d6 is disputed. I have printed Duke et al.’s OCT, but see his app. crit. and Rowe 1993: 243 for other readings.

the beautiful itself, it is beautiful on account of nothing other than because it has a share of *that* beautiful [thing]. I mean this to be so for everything. Do you go along with a reason of this kind?’

‘I do’, he said.

‘So I no longer understand or am even able to recognise these different wise reasons’, he said. ‘Instead, if anyone says to me on account of what anything whatsoever is beautiful, if it has a vibrant colour or appearance or anything else of this kind of thing, I wave goodbye to all that. For I am thrown into confusion when I am among all other [reasons]. In a simple and amateurish and perhaps naïve fashion I hold onto this for my own sake: no other thing makes [a thing] beautiful than the presence or association of *that* beautiful thing or in whatever way and manner [the relation] is denoted. I’m no longer [so] confident on this, but [affirm] that it’s by the beautiful that all beautiful things are beautiful. For this seems to me to be supremely safe to reply both to myself and to someone else. By holding onto this, I think that I would never fall, but it’s safe to reply to me and to anyone else that by the beautiful beautiful things come to be beautiful. Do you think so too?’

‘Yes, I do.’

The key aspect for our purposes in this passage is the question of how the Forms relate to the reason which is being displayed, which I have identified from the beginning of the ‘second voyage’ with the reason concerning generation and corruption as a whole. Socrates explains his understanding of this relationship through the example of the beautiful (*to kalon*). Specifically, he says that, ‘if anything else is beautiful besides the beautiful itself’ (meaning the Form of Beauty), ‘it is beautiful on account of nothing other than because it has a share of *that* beautiful thing’, i.e. the Form. Then, he asks Cebes whether he agrees to ‘a reason of this kind’ (*têi toiaide aitiai*). This suggests that the kind of reason which Socrates endorses is the reason according to which any thing X (besides the Form of X) is F because it has a share of the Form of F.⁴¹ Next, he says that he has dismissed all other reasons, but that he clings to the view that ‘no other thing makes [a thing] beautiful than the presence or association of *that* beautiful thing (meaning the Form) or in whatever way and manner [the relation] is denoted’. This sentence suggests that Socrates is repeating essentially the same claim which he made at 100c, so that the formula, ‘X is F because X has a share of (*metechei*) the Form of

⁴¹ Strictly speaking, Socrates does not describe the Form as an *aitia*, even though commentators are often disposed to make this identification. Nor does he regard the Form as *aitios*, an aspect which makes sense if we consider that the status of being *aitios* entails intelligent agency (as opposed to that which is the object of intelligence). Cf. Arist. *Gen. Corr.* 2.9, 335b, where Aristotle reports that Socrates in the *Phaedo* describes the Forms as *aitia* (from the adjective *aitios*) for generation and corruption, not *aitiai*.

F', contains the same metaphysical commitment as the formula that 'the Form of F makes (*poiei*) X F'. Then, he says, 'I'm no longer [so] confident on this, but [affirm] that it's by the beautiful that all beautiful things are beautiful'. Although this point has lately come under question⁴², I take it that 'the beautiful' (*tôî kalôî*) is again a reference to the Form of Beauty, while in the first part of the sentence Socrates acknowledges uncertainty about the precise nature of the Form-particular relationship. Accordingly, Socrates' 'safest reply' is that X things are or become F by or because of the Form of F. Hence, Socrates is saying that the Forms play a central role in accounting for generation and corruption as a whole.

What is the explanatory function that the Forms are supposed to fulfil? This question brings us back to the very beginning of Socrates' autobiography, and his opening reference to 'the reason concerning generation and corruption' (*peri geneseôs kai phthoras tîn aitian*, 95e10-96a1). As I observed earlier, this reference poses a number of puzzles. The main reason for this is that the language of generation and corruption is ambiguous: either this language can refer to the process of coming-into-being and passing-away of natural entities, or it can denote the contingent metaphysical status which is possessed by objects in the sensible world.⁴³ I think that this passage shows that the *second* of these two senses is uppermost in Socrates' mind. For example, Socrates employs the language of generation in this basic metaphysical sense at 100e2-3, when he states that beautiful things *come to be* (*gignetai*) beautiful by the beautiful (meaning the Form of Beauty). Also at 101b-c, he explains the

⁴² David N. Sedley (2021c) has argued in a recent paper that Socrates' references to 'the beautiful' at 100d7 and e2, *unlike* his references to 'that beautiful [thing]' at 100c5-6 and d5, are not to the Form of Beauty, but to 'beauty in general without metaphysical determination' (2021c: 51). On this construal, Socrates is not merely dismissing the details of the Form-particular relation, but the very notion of Forms' existence and their separation in some way from particulars. Sedley's argument is that this reading is necessary for a later passage in which Socrates distinguishes between 'the safe [part] of the hypothesis' and 'the hypothesis itself' (101c-d, at d2-3), in which, on his reading, the former refers to the view that beauty makes beautiful things beautiful (in a metaphysically indeterminate sense) and the latter refers to the hypothesis that there are Forms. However, I think that it is still possible to retain the traditional reference of 'the beautiful' to Forms *and* the differentiation between 'the safe [part] of the hypothesis' and 'the hypothesis itself', as Sedley would like. The hypothesis is that 'beautiful and good and large and all the others are something in and of themselves' (100b5-7), i.e. the existence of *separate* Forms. Conversely, the 'safe' part of the hypothesis is that beautiful things are (or: become) beautiful by the beautiful (meaning the Form of Beauty). So, the 'safe' reply is committed to Forms' existence and their explanatory centrality for the nature of particulars, but it is not committed to Forms' separateness or any detailed account of the Form-particular relationship. Compare also Phaedo's remark at 102b1-3, which clearly indicates that the 'second voyage' is based on the acceptance of Forms.

⁴³ On this point, see, e.g., Hackforth 1972: 144-146, Gallop 1975: 170-171, Bostock 1986: 135, Rowe 1993: 229, and Sharma 2009: 140 n. 4. For wider reflection, see Frede 1988.

generation of two by remarking that ‘you’d shout loudly that you don’t know any way in which each thing *comes into being* (*gignomenon*) than by having a share in the particular essence (*ousia*) of each thing in which it does have a share’ (101c2-4), referring to the particular and the Form (or essence) respectively.⁴⁴ This shows that Socrates’ moment of contemplation at 95e-96a, which is triggered by Cebes’ objection against the soul’s longevity, is not so much concerned with the question of why anything comes into being and passes away as the question why anything *is* anything at all. Why is the soul ‘immortal’ (*athanatos*) and not ‘long-lasting’ (*poluchronios*)? Socrates’ answer to this question, as the subsequent final argument shows, is based on the hypothesised existence of Forms. Hence, by giving a central role to the Forms for basic metaphysical explanation, Socrates can proceed to find out how, as well as that (*hôs*, 100b9), the soul is immortal.

How do the different parts of Socrates’ autobiography fit together? I argue that there is a single *fil rouge* which underlies the entire passage and motivates Socrates’ explanatory agenda at every turn. Let us summarise the various stages altogether. Firstly, Socrates replies to Cebes’ objection about the extent of the soul’s existence by commenting that his view calls for a thorough investigation into the reason concerning generation and corruption as a whole. This investigation is maximally general in scope and essentially metaphysical in character, insofar as it asks how one is supposed to account for the nature of anything. Then, Socrates offers to describe his own experiences in this subject-area, which lead him to relate his interest in natural philosophy as a young man. This shows that Socrates expected the natural-philosophical tradition to help him in this general metaphysical inquiry, since natural philosophy is concerned with knowing the reasons for the generation and destruction of each thing. But Socrates found natural philosophy first confusing and then disappointing. It was confusing because it prevented Socrates from giving explanations of any kind. And it was disappointing because Anaxagoras promised to account for everything in terms of intelligence, but in the end his natural-philosophical explanations lacked intelligence because of his misunderstanding concerning causality. Therefore, Socrates undertook his ‘second voyage’ in inquiring into the general reason, having been frustrated by the natural-

⁴⁴ Contrast Sedley 2021c: 53-54, who takes the talk of becoming, being and participation (*metaschesis*) to be metaphysically indeterminate. See, however, *metechei* used of the Form at 100c5. On reference to the Form as an essence in this passage, see Politis 2010.

philosophical tradition. His own, idiosyncratic approach is developed in opposition to the dominant natural-philosophical approach, insofar as it gives a central role to the formulation of accounts (versus the study of the phenomena directly) and is based on the hypothesis of separate Forms. Lastly, Socrates explains that the Forms can account for generation and corruption as a whole, and from the security of this framework he responds to Cebes' objection by showing that the soul is immortal.

Note, finally, that Socrates does not apply the methodology of his own 'second voyage' to the objects of natural philosophy in the *Phaedo*, and he admits that he has been unable to learn about intelligence-based reasoning in the cosmos either individually or from anyone else (99c-d). However, there appears to be nothing inherently opposed to natural-philosophical speculation in his alternative approach, nor is there anything which prevents this approach from being combined with the successful kind of approach that he expected to find in Anaxagoras, according to which intelligence organises and is responsible for all things (97c). It is with these considerations in mind that I turn back again to the *Timaeus*.

5. The method and metaphysics of Timaeus' account⁴⁵

In this section, I will argue that some features of the *Timaeus*' approach to natural philosophy can be fruitfully compared with aspects of Socrates' 'second voyage' in the *Phaedo*. Let us begin from a key methodological passage near the beginning of Timaeus' account (29a6-d3):

οὕτω δὴ γεγενημένος πρὸς τὸ λόγῳ καὶ φρονήσει περιληπτὸν καὶ κατὰ ταῦτ' ἔχον δεδημιούργηται· τούτων δὲ ὑπαρχόντων αὖ πᾶσα ἀνάγκη τόνδε τὸν κόσμον εἰκόνα τινὸς εἶναι. μέγιστον δὴ παντὸς ἄρξασθαι κατὰ φύσιν ἀρχήν. ὥδε οὖν περὶ τε εἰκόνας καὶ περὶ τοῦ παραδείγματος αὐτῆς διοριστέον, ὥς ἄρα τοὺς λόγους, ὧν πέρ εἰσιν ἐξηγηταί, τούτων αὐτῶν καὶ συγγενεῖς ὄντας· τοῦ μὲν οὖν μονίμου καὶ βεβαίου καὶ μετὰ νοῦ καταφανοῦς μονίμους καὶ ἀμεταπτώτους—καθ' ὅσον οἶόν τε καὶ ἀνελέγκτοις προσήκει λόγοις εἶναι καὶ ἀνικῆτοις, τούτου δεῖ μηδὲν ἐλλείπειν—τοὺς δὲ τοῦ πρὸς μὲν ἐκεῖνο ἀπεικασθέντος, ὄντος δὲ εἰκότος εἰκότας ἀνὰ λόγον τε ἐκείνων ὄντας· ὅτι περ πρὸς γένεσιν οὐσία, τοῦτο πρὸς πίστιν ἀλήθεια. ἐὰν οὖν, ὥ

⁴⁵ All un-marked Stephanus references in this section are to the *Timaeus*.

Σώκρατες, πολλὰ πολλῶν πέρι, θεῶν καὶ τῆς τοῦ παντὸς γενέσεως, μὴ δυνατοὶ γινώμεθα πάντῃ πάντως αὐτοὺς ἑαυτοῖς ὁμολογουμένους λόγους καὶ ἀπηκριβωμένους ἀποδοῦναι, μὴ θαυμάσης· ἀλλ’ ἐὰν ἄρα μηδενὸς ἦτον παρεχόμεθα εἰκότας, ἀγαπᾶν χρή, μεμνημένους ὥς ὁ λέγων ἐγὼ ὑμεῖς τε οἱ κριταὶ φύσιν ἀνθρωπίνην ἔχομεν, ὥστε περὶ τούτων τὸν εἰκότα μῦθον ἀποδεχομένους πρέπει τούτου μηδὲν ἔτι πέρα ζητεῖν.

In this way [the cosmos] has come into being with a view to be apprehended by reason and understanding and [it] has been demiurgically produced according to what remains in the same way. These things being so, it follows by all necessity that this cosmos is an *image* of something. Most important of all is to begin at the beginning according to nature. So, concerning [an] image and its paradigm, one ought to make the following distinction: the accounts are of these things of which they are ‘interpreters’ and are kindred [with them]. So, accounts of what is uniform and stable and made manifest with the help of intelligence are uniform and don’t fly away. To the extent that it’s possible for [our] accounts to be immune to refutation and insuperable, it’s fitting that one fall short in no respect of this. But accounts of what is likened to that other thing and is an image of it are likely about them according to proportion. As essence is to generation, so is truth to conviction. So, Socrates, if on many occasions we’re not able to render accounts about gods and the generation of the universe which are wholly consistent and precise in every way, don’t be surprised. But if we provide likely accounts less than nobody [else’s], we should savour that, bearing in mind that I as the speaker and you as the judges possess [a] human nature. Therefore, it’s fitting to accept the likely story about these things and to seek nothing more beyond this.

It is important to study this passage in conjunction with what Timaeus has just said about the cosmos. Previously he has argued that the cosmos is generated because of its visible and perceptible nature (28b-c) and that, because it is supremely beautiful, it is a product of demiurgy based on a permanently stable paradigm (28c-29b). Now, he explains that, ‘these things being so, it follows by all necessity that this cosmos is an *image* (*eikôn*) of something’. This shows that the imagistic nature of the cosmos is derived from the fact that it is demiurgically generated in accordance with an (intelligible) paradigm. Then, Timaeus proceeds to reflect on the epistemological consequences of regarding the cosmos as an image. Firstly, he says that, concerning an image and its paradigm, ‘accounts are of these things of which they are interpreters and are kindred [with them]’. This is a statement which concerns accounts about images and their paradigms *in general*, rather than accounts about

the cosmos as an image in particular. The personification of accounts as ‘interpreters’ (*exêgêtai*) also suggests that it belongs to the inherent nature of accounts to explain or expound that of which they are accounts, and it is in virtue of this function that they are ‘kindred’ with it.⁴⁶ This is further supported by the following lines, in which Timaeus distinguishes between accounts of paradigms and accounts of images. On the one hand, accounts about what is stable and fixed (i.e. paradigms) are stable and fixed themselves. On the other hand, ‘accounts of what is likened to that other thing and is an image of it are likely (*eikotas*) about them according to proportion’. This shows that accounts about images are generally likely, in contrast to accounts about paradigms which are generally stable. Finally, Timaeus applies these principles to the epistemological character of his cosmology. Given that likelihood is the epistemic standard which accompanies the accounts of images, *his* accounts will not be precise and consistent in every way. But, he enjoins his listeners to be content with providing accounts that are likely ‘less than nobody [else’s]’.⁴⁷ Thus, likelihood is *first and foremost* a limitative standard which is imposed by the imagistic nature of Timaeus’ subject-matter, but it is also one at which one can excel and obtain satisfaction.⁴⁸ Finally, Timaeus maintains that it is appropriate to accept ‘the likely story’ (*ton eikota muthon*) and seek nothing beyond this.

Commentators in recent years have shone new light on the epistemological dynamics of the *Timaeus*’ ‘likely story’ and its relationship to the natural-philosophical tradition before Plato.⁴⁹ However, to my knowledge no interpreter has looked to connect the *Timaeus*’ understanding of the cosmos as an image with Socrates’ enigmatic remark on the use of

⁴⁶ I thus take the *kai* at 29b5 as ‘epexegetical’. Burnyeat (2005: 149) translates 29b4-5 as ‘accounts are akin to those things of which they are *exêgêtai*’ but writes that ‘these accounts will be akin to their subject matter *in the sense of being eikotes* accounts of that subject matter’ (2005: 152, my italics), which suggests that he is understanding the *kai* in the same way. On the associations of *exêgêtai*, see Burnyeat 2005: 149-150 and Betegh 2010: 216-217.

⁴⁷ Commentators dispute the reference of *mêdenos hêtton* at 29c7 (as also at 48d5), with some translating it with a personal force (e.g. Johansen 2004: 49, Burnyeat 2005: 148 n. 13, Mourelatos 2010: 227-228) and others (e.g. Cornford 1937: 23) opting for an impersonal expression. However, it is clear that, even on the personal construal, the reference is strictly to another person’s *account* (*mêdenos* is grammatically masculine, with ‘[sc. *logou*]’ supplied). This fits with the focus on accounts from their introduction at 29b4.

⁴⁸ Burnyeat 2005 emphasised the aspirational dimension of the *eikos* standard, versus Taylor 1928: 59-61 and Cornford 1937: 28-29 who had focussed only on its restrictive aspect. For a balanced assessment, see Betegh 2010. For other valuable discussions, see Johansen 2004: 48-68, Bryan 2012, chs. 3-4, and Broadie 2012: 27-59.

⁴⁹ See, besides the references in the previous footnote, Mourelatos 2010, Bryan 2012, chs. 1-2, Mourelatos 2014 and Johansen 2016b.

images in the *Phaedo*. As we saw in the last section, Socrates in the *Phaedo* decides to inspect the truth of the things in existence through accounts (*logoi*) rather than by examining the phenomena directly (i.e. through *erga*), which is implied to be the prevailing approach of the natural-philosophical tradition (*Phd.* 99e-100a). Then he acknowledges an uncertainty about his approach (*Phd.* 99e6-100a3):

Now perhaps the kind of approach which I'm imagining (*eikazô*) isn't likely (*ouk eoiken*). For I'm not wholly convinced that the [approach] which examines the things in existence in accounts inspects them in images (*en eikasin*) more than the [approach] which examines them concretely (or: in deeds).'

Why does Socrates doubt that his own approach will be inspecting things through images any more than the traditional natural-philosophical approach? This detail is usually explained by the idea that sensible particulars are 'images' (*eikones*) of the Forms, so that Socrates' approach, which is based on the existence of Forms, will use particulars as images just as particulars are used by the natural philosophers.⁵⁰ But a more elaborate answer of sorts is forthcoming from the *Timaeus*, in which the cosmos itself is conceived as an image. Therefore, whether one examines the phenomena directly or formulates accounts about them, in both cases one is conducting one's inquiries by means of images. The *Timaeus* also provides a resolution of sorts to Socrates' doubt in the *Phaedo* that this kind of approach will not be 'likely', by explaining that likeliness is a standard which can be aimed at, and not just one which is dictated by the metaphysical nature of one's subject matter. Further, *Timaeus* emphasises both in his opening preface and throughout his narration that he is formulating accounts (*logoi*) about the cosmos, rather than inspecting the phenomena concretely (i.e. through *erga*).⁵¹ The *Timaeus* thus seems to take up some constitutive features of Socrates' 'second voyage' and incorporate them into its own approach to natural philosophy.

⁵⁰ See, e.g., Bostock 1986: 158-162, Rowe 1993: 240-241, and Frede 1999: 121-122.

⁵¹ The exact force of the *logos* / *ergon* distinction in the *Phaedo*, as well as its potential implicit presence in the *Timaeus*, is not very clear. Perhaps Socrates wishes to define his alternative approach as *logos*-based, in opposition to the predominant natural-philosophical approach which is *ergon*-based, in order to stress the distinctive nature of his *logoi* as explanatory accounts which are formulated on the basis of existent Forms. Similarly, *Timaeus*' *logoi* are explanatory (or 'exegetical') and they are also ultimately founded on the existence

The *Timaeus*' natural philosophy is also significantly based on the existence of separate Forms. Within the course of describing 'the third, other kind' which is introduced in his account of necessity, Timaeus poses the following set of questions (51b7-c5):

ἄρα ἔστιν τι πῦρ αὐτὸ ἐφ' ἑαυτοῦ καὶ πάντα περὶ ὧν ἀεὶ λέγομεν οὕτως αὐτὰ καθ' αὐτὰ ὄντα ἕκαστα, ἢ ταῦτα ἅπερ καὶ βλέπομεν, ὅσα τε ἄλλα διὰ τοῦ σώματος αἰσθανόμεθα, μόνα ἐστὶν τοιαύτην ἔχοντα ἀλήθειαν, ἄλλα δὲ οὐκ ἔστι παρὰ ταῦτα οὐδαμῇ οὐδαμῶς, ἀλλὰ μάτην ἐκάστοτε εἶναι τί φαμεν εἶδος ἐκάστου νοητόν, τὸ δ' οὐδὲν ἄρ' ἦν πλήν λόγος;

So, does fire exist as something itself for the sake of itself, and do all [the] things exist about which we always say in this way that they are individually something 'in and of themselves'? Or, are these things which we actually see, and all other things which we perceive through the body, in existence alone, having some kind of truth, whereas there are no other things besides these in any way whatsoever? Is it, then, in vain that we say on each occasion there is some intelligible form of each thing, but in fact it's a nothing except speech?

The reference to the Forms as those things which exist 'in and of themselves' (*auta kath' hauta*) recalls Socrates' description of the Form in the *Phaedo* as that which exists 'in and of itself' (*auto kath' hauto*, *Phd.* 100b6). This suggests that Timaeus' notion of Forms is broadly continuous with Socrates' understanding in the *Phaedo*. Moreover, Timaeus' argument for the separation of Forms from particulars bears interesting comparison with Socrates' motivation for giving the Forms a central role in the reason concerning generation and corruption in his autobiography. Timaeus says that Forms are distinct from particulars because intelligence (*nous*) differs from true belief (*doxa alêthês*) and the Forms alone are the objects of intelligence (51c-d). Further, intelligence is always accompanied by a true account, whereas true belief lacks any account (51e). This indicates that Forms are required on essentially epistemological grounds in order to discriminate between higher and lower levels of general intellectual cognition. Similarly in the *Phaedo*, Socrates introduces the Forms

of Forms, even though Forms play a less direct role in natural-philosophical explanation than in basic metaphysical explanation. By contrast, *erga*-based approaches lack the correct metaphysical foundations, in a way that anticipates those thinkers who associate body with the entirety of reality (cf. e.g. *Soph.* 246a-d).

in order to account for generation and corruption as a whole after he was disappointed by the explanations which were provided by the natural-philosophical tradition. These explanations were disappointing not only because they offered competing accounts of the same explanandum (*Phd.* 96b, 99d, 100c-d), but also because they stated that the same thing was responsible for opposing explananda (*Phd.* 96e-97a, 101a-b). However, Socrates' invocation of the Forms provides an answer to basic metaphysical questions which is singular and maximally safe, such that it avoids the kinds of absurdities which were problematic with the natural philosophers' explanations. The Forms thus allow for a differentiation between true belief and intelligence (in which intelligence is taken to involve a thoroughgoing and objective understanding or insight into something). The *Timaeus* thus again appears to build on Socrates' involvement of the Forms in the *Phaedo* and apply it to its own natural-philosophical investigation.

These connections suggest that it would be mistaken to restrict the influence of the *Phaedo*'s autobiographical passage on the *Timaeus* to the earlier passage on Socrates' interest in natural philosophy as a young man alone. Rather, I think that the second half of Socrates' autobiography, in which he outlines his 'second voyage' into the reason concerning generation and corruption, is *of no less relevance* than the first half in anticipating the kind of natural-philosophical approach which is developed in the *Timaeus*. The two contexts assuredly differ in many respects – for instance, Socrates characterises his own approach by its randomness, simplicity and supreme safety, while Timaeus is presented as an expert natural philosopher (20a, 27a)⁵² – but this does not prevent us from observing traces of the former in the approach adopted by the latter. In summary, the *Timaeus* combines aspects of *both* the earlier natural-philosophical section *and* the later description of Socrates' 'second voyage' into its own framework for natural-philosophical explanation. So, even though Socrates is only an approving listener in the *Timaeus* and does not present the main account itself (since, after all, he is not a specialist natural philosopher), nevertheless this account is distinguished by a favourably 'Socratic' outlook on natural philosophy.

⁵² Thanks go to Chandler Clark for emphasising this difference to me.

6. The Socratic contribution to natural philosophy

Just before bringing this chapter to a close, it is worth reflecting on a later section of the *Phaedo*'s conversation which has also sometimes been interpreted to anticipate the natural philosophy of the *Timaeus* (*Phd.* 108e4-109a6):

Πέπεισμαι τοίνυν, ἥ δ' ὅς, ἐγὼ ὡς πρῶτον μὲν, εἰ ἔστιν ἐν μέσῳ τῷ οὐρανῷ περιφερὴς οὔσα, μηδὲν αὐτῇ δεῖν μήτε ἀέρος πρὸς τὸ μὴ πεσεῖν μήτε ἄλλης ἀνάγκης μηδεμιᾶς τοιαύτης, ἀλλὰ ἱκανὴν εἶναι αὐτὴν ἴσχειν τὴν ὁμοιότητα τοῦ οὐρανοῦ αὐτοῦ ἑαυτῷ πάντῃ καὶ τῆς γῆς αὐτῆς τὴν ἰσορροπίαν· ἰσορροπον γὰρ πρᾶγμα ὁμοίου τινὸς ἐν μέσῳ τεθὲν οὐχ ἔξει μᾶλλον οὐδ' ἥττον οὐδαμῶσε κλιθῆναι, ὁμοίως δ' ἔχον ἀκλινὲς μενεῖ.

'So I've been persuaded', he said, 'that, first, if [the earth] is in the middle of the heaven and is round, it has no need at all of air to avoid falling or any other necessity of this kind whatever. Rather, the heaven's uniformity with itself in every direction and the equipoise of the earth itself are adequate to keep it up. For an object of equipoise, if positioned in the middle of something uniform, will not be able to tend more or less in any direction, but will remain in the same place in a disinclined state.'

Socrates' explanation of the earth's centrality in the cosmos clearly picks up on his references to Anaxagoras and the other natural philosophers' accounts of the same explanandum earlier (*Phd.* 97d-e, 99b-c). Thus, in opposition to them, Socrates is here expressing his own opinion, which he has come to possess from an anonymous source.⁵³ But interpreters have debated to what extent this explanation counts as the kind of intelligent-based answer which he expected to find in Anaxagoras.⁵⁴ I argue that Socrates' explanation importantly avoids the

⁵³ Commentators sometimes connect the anonymous source with the sixth-century natural philosopher Anaximander, who is reported to have accounted for the earth's centrality by reference to uniformity and equipoise (DK 12 A 26 = Aristotle, *Cael.* 2.13, 295b10). See Gregory 2016: 147-152.

⁵⁴ Sedley 1989 argued that the *Phaedo*'s later conversation and myth pick up each of the three cosmic explananda which were stated in the natural-philosophical excursus (the shape and position of the earth and the motions of the heavenly bodies) and re-cast them in an intelligent (or 'teleological') light, in a way which directly anticipates the *Timaeus*. See, on this passage, 1990: 363-371. However, Sedley's reading is premised on the notion that Socrates is himself unaware of the intelligent dimension, which needs to be un-earthed by a

kind of misunderstanding concerning responsibility which, in his view, the natural philosophers were guilty of, but that it does not yet constitute a fully-formed intelligent explanation of the kind which Socrates wished for and which is provided in the *Timaeus*. Socrates says that, if the earth is in the centre, then it has no need of air to avoid falling or 'or any other necessity of this kind whatsoever'. This suggests that Socrates is deliberately resisting any appeal to necessary conditions in his explanation, contrary to the natural philosophers earlier. Instead, he cites the heaven's uniformity (*homoiotês*) and the earth's equipoise (*isorhopia*) as the factors which suffice to keep it central. Certainly these factors seem *open* to being incorporated into an intelligence-based account of the earth's position. However, notably Socrates does not appeal to goodness at all in his explanation, nor does he use the language of cause and explanation (*aitios, aitia*) which were so prominent in his earlier discussion of natural philosophy and which are also central in the *Timaeus*. This indicates that, in keeping with what he has stated earlier (*Phd.* 99d), Socrates is still unable to discover intelligence-based reasoning in the cosmos, even though his own view of the earth's centrality paves the way towards an intelligence-based account. The *Phaedo* thus remains an incomplete step towards the *Timaeus'* approach to natural philosophy, but at the same time this approach deserves to be called 'Socratic'.

cunning reader and which have been subtly inserted by Plato. Conversely, this chapter has argued that Socrates is formulating views which can be organised into an intelligence-based approach to natural philosophy, but that he does not present such a fully developed approach himself. For objections to Sedley's 'two-tiered' interpretation, see Fine 1989 and Rowe 1993: 271-272.

3 The ‘literalism’ of the *Timaeus*’ origin-story

1. The origin-story controversy and the commitments of ‘literalism’

The main account in the *Timaeus* (29d-92c) contains a story of generation (*genesis*).¹ More specifically, it contains a story of the generation of our cosmos, understood as its transition from an original state which lacked arrangement (*ataxia*) to its present-day state of arrangement (*taxis*). However, from the very beginning of the *Timaeus*’ reception in the early Platonic Academy, the purposes and commitments of this generation-story – or ‘origin-story’, as I shall tend to refer to it in shorthand – have been subject to fierce interpretive debate. Since the precise terms and implications of this debate will be the focus of this and the following chapter, it will be helpful to begin by outlining them briefly. The debate is traditionally conducted in terms of an opposition between ‘literal’ and ‘non-literal’ (or ‘metaphorical’) points of view. On the one hand, ‘literal’ interpreters accept that the *Timaeus* straightforwardly presents a story of generation or origination and maintain that Plato was committed to the most elementary dogma of this account, namely *that* the cosmos is generated or has come into being (i.e. from a state of not existing before).² Accordingly, in their view all of the major features of the origin-story – such as the demiurge, the paradigm, and the pre-cosmic state of affairs – are meant to be interpreted as they initially seem within the generation-narrative as a whole.

On the other hand, ‘non-literal’ interpreters variously question both the notion that the *Timaeus* straightforwardly presents a story of generation in the sense of coming-into-being and that Plato believed in the cosmos’ generation in this sense at all.³ ‘Non-literal’ interpretations come in a range of different forms, which makes it more difficult to summarise

¹ All un-marked Stephanus references are to the *Timaeus* in this chapter.

² ‘Literal’ defences of the origin-story include two influential papers by Gregory Vlastos (1939 and 1964), Hackforth 1959, Gregory 2007: 147-151 (a ‘qualified’ literal view) and 2009, Sedley 2007: 98-106, and Broadie 2012: 243-265.

³ ‘Non-literal’ adherents of various kinds include Taylor 1928: 66-69, Cornford 1937: 24-27, 34-39, 203-210, Cherniss 1944: 421-431, Tarán 1971, Baltes 1996, Dillon 1997, Carone 2005: 31-52, Ferrari 2010, Fronterotta 2010 and Brisson 2016.

their position easily. For example, some ‘non-literal’ interpreters argue that various features *within Timaeus’ account* are not intended to be understood in the way that they obviously appear in the *Timaeus’* text. Although this kind of de-literalising manoeuvre can operate at greater or lesser degrees, as we shall see, perhaps the most well-known instance of it is the contention that *the demiurge* who is cast as the constructive cause of the cosmos’ generation should be identified either with the Forms (and/or the Formal paradigm to which he looked in his construction) or with the cosmos’ soul which he brings into being (35a-36b).⁴ These ‘non-literal’ interpretations of the demiurge have the effect of collapsing the overall architecture of the origination-narrative, so that the ‘literalism’ of the origin-story is called into question in turn. Other ‘non-literal’ interpreters accept that all of the features of the origin-story are meant to be understood ‘literally’, but they dispute the idea that *Plato subscribed to* the cosmos’ generation in the sense of coming-into-being in the way that is (or seems) implied by *Timaeus’* speech. Hence, rather than focussing on the features within *Timaeus’* account, they impose a distinction between the words or commitments of this account, on the one hand, and the views and commitments of Plato as its author, on the other. Both these kinds of ‘non-literal’ interpreters standardly affiliate their point of view with a group of Plato’s early students and associates in the Academy, who, as we shall examine in the next chapter (Chapter 4), are reported to have defended the *Timaeus’* account by saying that it was intended ‘for the sake of instruction’ (*didaskalias charin*). Consequently, the early Platonists are also traditionally described as ‘non-literal’ or ‘metaphorical’ interpreters of the origin-story.

The debate has persisted throughout the modern history of scholarship on the *Timaeus* and today it remains arguably the most contentious issue of the dialogue’s interpretation. Live discussions of the topic have a tendency to become partisan very quickly, with both sides falling back on old arguments and assumptions and with the result that their interlocutors often talk past each other without making any dialectical progress. One reason for this partisan attitude, I take it, is that the debate around the ‘literalism’ of the origin-story touches on so many fundamental issues of the *Timaeus’* presentation, Plato’s art as a

⁴ For ‘non-literal’ adherents of the demiurge in particular, see §3.2.3. Another hotly contested issue between ‘literal’ and ‘non-literal’ interpreters is the force of the perfect verb *gegonen* at 27b7, which marks *Timaeus’* answer to the question whether the cosmos has come into being at all. On this aspect, see n. 56 below.

philosophical dialogue-writer and his own commitments in natural philosophy. As a result, the debate over whether or not Plato meant the story ‘literally’ is at the same time a debate over Plato’s intentions and skills as a philosophical communicator. Further, as I have already noted, the original impetus for the modern controversy comes from the reaction to the *Timaeus* of a group of early Platonists, who, across almost two and a half thousand years of Platonic interest and interpretation, stood in the closest biographical proximity to Plato. Hence, even if the testimonial value of these thinkers’ reaction is open to discussion⁵, there seems to be a sense in which, so long as the issue of the origin-story’s ‘literalism’ goes unresolved, we are deprived of a crucial aspect of understanding the *Timaeus*, namely the way in which it was received and defended by those who were nearest to, and most venerating of, Plato.

In this chapter, I will seek to establish greater clarity in this debate by re-assessing the terms according to which the debate is usually carried out. As I have introduced the competing positions and their commitments above, it should be evident that the debate is traditionally staged at a number of different levels. Specifically, whereas some ‘non-literal’ interpreters challenge the interpretation of various features within *Timaeus*’ account, other ‘non-literal’ interpreters draw an opposition between the views and commitments which are expressed in the *Timaeus* and those which, in their opinion, should be attributed to Plato. Moreover, it appears that, within the scholarly debate, the language of ‘literalism’ – as well as its opposites, such as ‘metaphor’ and ‘allegory’⁶ – is used to apply to *both* these levels, which indicates that there is a certain ambiguity or uncertainty in the traditional usage of the terms. In what follows, I will use the language of ‘literalism’ *exclusively* to assess the interpretation of features which appear in the *Timaeus*’ account itself. In other words, I propose to confine the domain of the literal only to the discussion of Plato’s views on the *contents* of *Timaeus*’ origin-story, as opposed to his views on the existence of these contents in actual fact. This use of the language of ‘literalism’ to apply to the analysis of *texts*, but not to the views that are held independently of those texts, seems to me thoroughly in

⁵ Compare my methodological comments in the Introduction, §3 (‘The *Timaeus*’ reception in the early Academy’).

⁶ On ‘metaphor’ versus ‘allegory’, see §4 below.

accordance with the natural scope of the term.⁷ Then, when we turn to consider the historical impetus for the origin-story controversy in the views of the early Platonists in the next chapter, we will see that there is no incentive to draw on the language of ‘literalism’ at all. This will provide greater clarity in the broader debate and enable us to approach the Platonists’ views in a fresher and terminologically more neutral light.

The overall aim of the present chapter is to defend the ‘literalism’ – understood as the full and unqualified coherence – of the *Timaeus*’ origin-story as a whole. Thus, even though the terms ‘literal’ and ‘coherent’ are not obviously synonyms of one another, I will be arguing that *only* a ‘literal’ interpretation of all features of the origin-story can enable Timaeus’ account to be understood as coherent in turn. ‘Literalism’ is thereby a pre-condition for coherence, but coherence is the primary interpretive goal. The main discussion will be divided into two main sections, which respectively focus on the part of Timaeus’ account which is centred on intelligence or reason (*nous*) (29d-47e) and the part of his account which is centred on necessity or compulsion (*anagkê*) (47e-69a).⁸ Throughout each of these sections (§2-3), I will draw heavily on previous ‘literal’ interpreters, but I will occasionally go further than them in seeking to reconcile aspects which have not been satisfactorily resolved until now. Then, in the final section (§4), I will reflect on the openness of a full-blooded commitment to ‘literalism’ for the origin-story’s broader appreciation.

2. The account of intelligence (29e-47e)

⁷ A few commentators have reflected on the appropriateness on the language of ‘literalism’ to denote the traditional poles of the conflict. See, e.g., Gregory 2007: 151, who writes that ‘the literal/metaphorical question about [Plato’s] cosmogony may not be appropriate’ and Broadie 2012: 247, who acknowledges that ‘in fact, it is not easy to find the right terms for stating the issue’. It is possible that the language of ‘literalism’ to apply to the *Timaeus*’ origin-story controversy was first imported from its commonplace usage in biblical exegesis, especially in connection with the first Creation story in the Book of Genesis (*Gen.* 1:1-2:3). However, here too the language of ‘literalism’ is applied in various ways (thanks are owed to Sarah Broadie for having emphasised this point to me). It would be interesting to trace the terminology of both conflicts and their potential overlap in earlier generations of *Timaeus*-scholarship.

⁸ This division of (roughly) the first two thirds of Timaeus’ account goes back to Cornford (1937: xi-xiii), who distinguishes between ‘The Works of Reason’ and ‘The Works of Necessity’. He calls the remaining third of the account (69a-92c) ‘The Co-Operation of Reason and Necessity’.

The first section of the main discussion will focus on Timaeus' account of the role played in the cosmos' generation by intelligence (*nous*). For the sake of defending the 'literalism' of this account, I will pick out three aspects of it: (i) Timaeus' initial summary of the cosmos' construction (30a-c), (ii) his account of the generation of time (37d-39e), and (iii) the status of the demiurge as the one who is responsible for (meaning a cause of ~ *aitios*, 28a, 28c-29a) the cosmos' generation.

(i) The constructive act (30a-c)

Let us begin from the outset of the main account, in which, having asserted the constructor's good will to be the most commanding starting-point of generation and order in the eyes of intelligent men (29e), Timaeus describes the act of construction (30a2-c1):

βουληθεῖς γὰρ ὁ θεὸς ἀγαθὰ μὲν πάντα, φλαῦρον δὲ μηδὲν εἶναι κατὰ δύναμιν, οὕτω δὴ πᾶν ὅσον ἦν ὁρατὸν παραλαβὼν οὐχ ἡσυχίαν ἄγον ἀλλὰ κινούμενον πλημμελῶς καὶ ἀτάκτως, εἰς τάξιν αὐτὸ ἤγαγεν ἐκ τῆς ἀταξίας, ἡγησάμενος ἐκεῖνο τούτου πάντως ἄμεινον. θέμις δ' οὐτ' ἦν οὐτ' ἔστιν τῷ ἀρίστῳ δρᾶν ἄλλο πλὴν τὸ κάλλιστον· λογισάμενος οὖν ἠύρισκεν ἐκ τῶν κατὰ φύσιν ὁρατῶν οὐδὲν ἀνόητον τοῦ νοῦν ἔχοντος ὅλον ὅλου κάλλιον ἔσεσθαι ποτε ἔργον, νοῦν δ' αὖ χωρὶς ψυχῆς ἀδύνατον παραγενέσθαι τῷ. διὰ δὴ τὸν λογισμὸν τόνδε νοῦν μὲν ἐν ψυχῇ, ψυχὴν δ' ἐν σώματι συνιστάς τὸ πᾶν συνετεκταίνετο, ὅπως ὅτι κάλλιστον εἶη κατὰ φύσιν ἄριστόν τε ἔργον ἀπειργασμένος. οὕτως οὖν δὴ κατὰ λόγον τὸν εἰκότα δεῖ λέγειν τόνδε τὸν κόσμον ζῶον ἔμψυχον ἔννουν τε τῇ ἀληθείᾳ διὰ τὴν τοῦ θεοῦ γενέσθαι πρόνοιαν.

For God (or: the god) wanted all things to be good and nothing to be shoddy according to [its] potential. So, having taken control of all that was visible, not in a state of rest but moving in an un-harmonious and un-arranged way, he guided it to [a state of] arrangement from its lack of arrangement, having considered that the one is in every way better than the other. It neither was nor is lawful for one who is best to perform other than the most beautiful. So, having reasoned [this], he discovered that nothing from the things which were visible by nature will ever be [a] more beautiful product without intelligence than if it has intelligence, when viewed as a whole, and, in turn, that it's impossible for intelligence to be at hand for anything separately from soul. On account of this reasoning, he constructed intelligence in soul, and soul in body, and fashioned together the universe, in order that he would bring about a maximally

beautiful and good product according to nature. In this way, according to the likely account, one ought to say that this cosmos came to be an en-souled [and] intelligent living being in reality on account of the forethought of God.

This passage introduces several key features of the origin-story. Various aspects of the description have been contested. To begin with, numerous commentators have struggled to make sense of the fact that the pre-existent set of materials which God used in the construction of our cosmos is described as ‘visible’ (*horaton*) as well as subject to disorderly motion. For example, Gregory Vlastos noted in a classic defence of the origin-story’s ‘literalism’ that ‘Plato’s cursory reference to the primal chaos at 30a as “all that was visible” is one of the most obscure of his remarks about that all too obscure concept’.⁹ In explaining this obscurity, he first pointed to the fact that, in his description of the construction of the cosmos’ body, Timaeus says that nothing would ever come to be visible separately from fire (31b5). Then, he observed that, in the later description of the pre-cosmic state of affairs, there are ‘certain traces’ (53b2) of fire, as well as earth, water, and air, before the divine intervention. Vlastos therefore assumes that pre-cosmic fire is not in any way visible and glosses the description as an ‘un-explicated obscurity’. Similarly, several ‘non-literal’ interpreters of the origin-story have taken issue with the idea of pre-cosmic visibility, but they have construed it as a *deliberately* nonsensical detail on Plato’s part which is supposed to encourage his more subtle readers towards doubting the credibility of the origin-story at all.¹⁰ Thus, both ‘literal’ and ‘non-literal’ interpreters traditionally seem reluctant to acknowledge that the raw materials are in any way visible before the act of construction.

However, a ‘literalist’ disposition mandates that we take Plato’s description at face value and seek to make coherent sense of it so far as is possible. I therefore assume, for now, that the pre-cosmic materials *were* visible in some sense prior to the divine intervention. For, even though the reference to ‘all that was visible’ can be taken inclusively to denote the entire domain of becoming (*genesis*)¹¹, Timaeus in the immediately following lines says that ‘nothing from the things which were visible by nature (*tôn kata phusin horatôn*)’ is more beautiful

⁹ See Vlastos 1964: 403-405, at 404.

¹⁰ See, e.g., Taylor 1928: 79-80, Tarán 1971: 382-383, and Dillon 1997: 33-37.

¹¹ I owe thanks to both Andy Gregory and Thomas K. Johansen for enforcing this reading on me.

without intelligence than with intelligence, when viewed as a whole, in which he is referring to the state of affairs *before* God intervened in the materials. The expression *kata phusin* also expresses a way in which the materials are already visible, i.e. on account of their natural condition. The same principle applies to the materials' motion, which is explicitly said not to be inert (*oux hêsuchian agon*)¹² but distinguished by its lack of harmony and order (*plêmmelôs kai ataktôs kinoumenon*). I will come back to both these aspects later, when we can examine how exactly God first intervened on the raw materials.

Now let us turn to another aspect of the passage. Timaeus says that God, having reasoned that it is lawful to enact only what is most beautiful, discovered from the original materials that anything with intelligence is more beautiful than anything without intelligence when that product is viewed as a whole. Then he adds that 'in turn (*au*)... it's impossible for intelligence to be at hand for anything separately from soul'. This shows, firstly, that there is no intelligence (*nous*) in the pre-cosmic state of affairs. For, if there were any – even un-actualised – intelligence among the original materials, Timaeus would not be able to portray God deriving his observation concerning the relationship of intelligence and beauty in the way that he does. Secondly, it indicates that there is no *soul* (*psychê*) in the pre-cosmic state of affairs. Intelligence is only at hand for a thing (*paragenesthai tôi*) if there is also soul.¹³ Some commentators have cited this passage as evidence of the notion that *God*, meaning the cosmic demiurge, has a soul¹⁴, but I think that this confuses the force of the passage on at least two counts. For one thing, God is later described as the best of the things which always are and are intelligible (37a2), which at least raises the question whether his intellect is necessarily en-souled in the same way as that of the cosmos.¹⁵ But more significantly, Timaeus is here considering the nature of the raw materials and summarising God's constructive activity with respect to them. It therefore seems somewhat incongruous with the spirit of the passage to apply these considerations to the nature of *God*. Thus, I take it only that soul and

¹² The reference to *hêsuchia* might imply not 'rest' in the sense of 'immobility' (which is usually conveyed by *monê*, cf. 57d-e) but a state of quiet composure, versus the dynamic chaos which did originally prevail.

¹³ Cornford (1937: 197, 203-209) notably argued that the pre-cosmic motions implied the presence of a pre-cosmic soul, which was irrational because of the motions' disorderly nature. However, Timaeus never mentions that there is irrational soul in the pre-cosmos. Moreover, I think that the pre-cosmic motions can be accounted for by the nature of the objects in the pre-cosmos itself. See §3 below.

¹⁴ See, e.g., Cherniss 1944: 425-426, Tarán 1971: 395 n. 34, Carone 2005: 43-44.

¹⁵ On the separateness of God's intelligence, see Hackforth 1965, Menn 1995: 19-24 and Johansen 2008: 476 n. 42.

intelligence are absent in the pre-cosmos, whereas God, although intelligent, is unlikely to be en-souled (or, still less, be a soul).

Next, Timaeus notes that 'on account of this reasoning, he constructed intelligence in soul, and soul in body, and fashioned together the universe, in order that he would bring about a maximally beautiful and good product according to nature'. Here, it may be noted that, whereas Timaeus states that God constructed intelligence and soul in his fashioning of the universe, he does not explicitly state that God constructed 'body' (*sôma*). Moreover, we have already considered the initial evidence that the pre-cosmic materials are already visible and in disorderly motion, which suggests that, since visibility is generally tied to the possession of body and things which move are generally bodies (or souls, which however do not exist in the pre-cosmos), the raw materials already had a basic somatic or corporeal nature. I therefore take it that, in addition to a natural visibility and discordant motion, the raw materials were bodily in some sense before the divine intervention. Again, the details of this somatic nature can be filled in once we have examined the account of necessity later.

(ii) The generation of time (37c-39e)

After this initial summary of God's activity, Timaeus proceeds to discuss other key aspects of the construction. Firstly, he asks about the identity of the intelligible paradigm, concluding that the paradigm is all-comprehending, just as the cosmos comprehends all living beings within it (30c-d). He also infers that the cosmos is unique if it is based on this paradigm (30d-31b).¹⁶ Next comes his account of the construction of the cosmos' body (31b-34b). Then, after briefly describing how the body and soul were connected together, Timaeus provides an account of the construction of the cosmos' soul (35a-36d). The soul is generated prior to the

¹⁶ Keyt 1971 famously argued that Plato is guilty of the fallacy of division in deducing the cosmos' uniqueness from its singular paradigm, and that this contributes to make God a 'mad craftsman'. However, I think that Plato can be excused of the fallacy of division if we bear in mind that the paradigm's singularity is deduced from its status as all-including and so complete (note the explanatory *gar* at 31a4-5). Accordingly, the cosmos is one because the paradigm is one, the paradigm is one because it includes all things within it, and the characteristic of being all-including entails completeness, which endows beauty (cf. 30c5). Thus, there is no fallacy of division, but only *a priori* reasoning that can be traced back to the observable datum of the cosmos' supreme beauty.

body, even though Timaeus narrates its construction later (34b-c)¹⁷, and he explains how the soul was fitted to the body, centre to centre, and completely woven from the middle to the edge of the cosmos and covered it all around from the outside (36d-e). After describing the soul's construction, Timaeus gives an elaborate account of the way that the soul thinks by formulating different kinds of accounts (37a-c).

Now Timaeus shows God coming to a new phase of the construction, which is designed to further the similarity between the cosmos and its paradigm (37c6-d7):

Ὡς δὲ κινηθὲν αὐτὸ καὶ ζῶν ἐνόησεν τῶν αἰδίων θεῶν γεγονὸς ἄγαλμα ὁ γεννήσας πατήρ, ἡγάσθη τε καὶ εὐφρανθεὶς ἔτι δὴ μᾶλλον ὅμοιον πρὸς τὸ παράδειγμα ἐπενόησεν ἀπεργάσασθαι. καθάπερ οὖν αὐτὸ τυγχάνει ζῶον αἰδίων ὄν, καὶ τότε τὸ πᾶν οὕτως εἰς δύναμιν ἐπεχείρησε τοιοῦτον ἀποτελεῖν. ἡ μὲν οὖν τοῦ ζώου φύσις ἐτύγχανεν οὔσα αἰώνιος, καὶ τοῦτο μὲν δὴ τῷ γεννητῷ παντελῶς προσάπτειν οὐκ ἦν δυνατόν· εἰκὼ δ' ἐπενόει κινητὸν τινα αἰῶνος ποιῆσαι, καὶ διακοσμῶν ἅμα οὐρανὸν ποιεῖ μένοντος αἰῶνος ἐν ἐνὶ κατ' ἀριθμὸν ἰοῦσαν αἰώνιον εἰκόνα, τοῦτον δὲ δὴ χρόνον ὠνομάκαμεν.

The begetting father cognised it [sc. the cosmic god] once it was in motion and alive in this way as a generated object of worship of the eternal gods. He was elated and, in his elation, conceived to make it a still more similar product to the paradigm. So, just as it [sc. the paradigm] happens to be [an] eternal living being, he tried to accomplish this kind of thing on this universe too in the following way according to [its] potential. The nature of the [paradigmatic] living being happened to be everlasting, and it wasn't possible to attach this to the begotten thing completely. But, he conceived to make a kind of image of everlastingness in motion. Together with his organisation of heaven, he makes [an] everlasting image of everlastingness remaining in a single [state], which proceeds on the basis of number. This [sc. the image] is that which we have given the name 'time'.

This passage describes God's motivation for the generation of time (*chronos*). Since the description contains various elaborate details, I will begin by paraphrasing each step of it. Firstly, the paradigm is an eternal living being (*aidion zōion*). Since God's wish was to make

¹⁷ On the motives behind this divergence between the presented and the actual orders of construction, see Chapter 5.2 and 5.5 below.

the cosmos maximally like the paradigm, Timaeus says that God sought to incorporate ‘this kind of thing’ (*toiouton*), meaning eternity, on the cosmos so far as it was possible. Then he states that the nature of the living being, meaning the paradigm, was ‘everlasting’ (*aiônios*).¹⁸ However, it wasn’t possible to attach this (*touto*), meaning everlastingness or an everlasting nature, on the generated thing, meaning the cosmos, ‘completely’ (*pantelôs*). Still, God determined to make ‘a kind of image of everlastingness in motion’ (*eikô... kinêton tina aiônos*). Then, Timaeus observes that, as God ordered the cosmos, so too he makes ‘an everlasting image of everlastingness remaining in a single [state], which proceeds on the basis of number’. Hence, whereas the everlastingness which characterises the paradigm is stationary and distinguished by unity, the everlastingness which characterises the image is mobile and distinguished by a plurality of countable phases. This product – meaning the image which is made¹⁹ – is identifiable with what we have given the name ‘time’.

We need to keep in mind that time is generated in order to make the cosmos resemble the paradigm with respect to the latter’s *eternal* nature. Further, time, understood as an

¹⁸ Both the words *aidios* and *aiônios* are adjectives formed from the adverb *aei* (‘always’). The word *aiônios* is also unattested before Plato and commentators note that it, as well as the composite form *diaiônios* (38b8, 39e2), may well be a Platonic coinage. It is formed from the noun *aiôn*, which traditionally denotes a ‘period of existence’ or ‘lifespan’ of a living being, but which in this passage appears to carry the sense of *everlasting* existence (with biological connotations). Since these connotations seem better reflected in English by ‘everlasting’ than ‘eternal’, I translate *aiônios* as ‘everlasting’ and *aidios* as ‘eternal’, although I do not envision a strong distinction between them.

¹⁹ The reference of the demonstrative pronoun *touton* in the expression *touton hon dê chronon ônomakamen* (37d7) is contested. Many interpreters have taken it to refer to the ‘image’ (e.g. Ilievski 2015), while some (e.g. Brague 1982, Thein 2021: 95-96), pointing to the fact that *eikôn* is feminine (cf. *iousan*) whereas *touton* is masculine, argue that it should be taken with either ‘heaven’ (*ouranos*) or – as seems to have become more popular in recent years – ‘number’ (*arithmos*). However, I think that there may be a way to construe it with the ‘image’ if we consider the rules of Greek grammatical attraction. It is common for pronouns to be attracted into the gender of the predicate nouns to which they refer in the case of verbs which take double accusatives, such as verbs of naming (which is the kind of verb we have here; see Smyth §2502e, who cites *Phlb.* 40a6-7 – thanks go to Eirik Welo for the reference). Thus, the relative pronoun *hon* is masculine because it has been attracted into the gender of *chronon*. As for *touton*, it appears that this too has been attracted into the gender of *chronon* because of its close appositional relationship to *hon* (thanks go to Luuk Huitink for advising me to express this in this way). On this construal, Timaeus is saying that ‘time’ (*chronos*) is the name or term (*onoma*) by which we refer to the image that God assembled, which is slightly different from saying that time *is* an image itself (thanks go to Michael Rhodes for pointing this distinction out to me). What time *is*, as Timaeus says later, are ‘the wanderings of these things [sc. the planetary bodies]’ (*chronon onta tas toutôn planas*, 39d1), i.e. planetary motion (which is describable as the ‘image’ that God creates). Therefore, time is essentially a set of astronomical motions which imitates everlastingness and gives rise to number (understood as a plurality of countable units).

image of everlastingness, is distinguished by its measurable *motion*. In the following lines Timaeus describes what comes into being with the generation of time (37e1-38a8):

ἡμέρας γὰρ καὶ νύκτας καὶ μῆνας καὶ ἐνιαυτούς, οὐκ ὄντας πρὶν οὐρανὸν γενέσθαι, τότε ἅμα ἐκείνῳ συνισταμένῳ τὴν γένεσιν αὐτῶν μηχανᾶται· ταῦτα δὲ πάντα μέρη χρόνου, καὶ τό τ' ἦν τό τ' ἔσται χρόνου γεγονότα εἶδη, ἃ δὴ φέροντες λανθάνομεν ἐπὶ τὴν αἰδίον οὐσίαν οὐκ ὀρθῶς. λέγομεν γὰρ δὴ ὡς ἦν ἔστιν τε καὶ ἔσται, τῇ δὲ τὸ ἔστιν μόνον κατὰ τὸν ἀληθῆ λόγον προσήκει, τὸ δὲ ἦν τό τ' ἔσται περὶ τὴν ἐν χρόνῳ γένεσιν ἰοῦσαν πρέπει λέγεσθαι—κινήσεις γὰρ ἔστων, τὸ δὲ αἰεὶ κατὰ ταῦτα ἔχον ἀκινήτως οὔτε πρεσβύτερον οὔτε νεώτερον προσήκει γίνεσθαι διὰ χρόνου οὐδὲ γενέσθαι ποτὲ οὐδὲ γεγονέναι νῦν οὐδ' εἰς αὖθις ἔσεσθαι, τὸ παράπαν τε οὐδὲν ὅσα γένεσις τοῖς ἐν αἰσθήσει φερομένοις προσῆψεν, ἀλλὰ χρόνου ταῦτα αἰῶνα μιμουμένου καὶ κατ' ἀριθμὸν κυκλουμένου γέγονεν εἶδη –

For days and nights and months and years do not exist before heaven came into being. But [God] devises the generation of them then, together with its [sc. heaven's] being established. All these things are parts of time, and 'was' and 'will be' are generated forms of time, which we unthinkingly but incorrectly apply to the eternal essence. For we say that it was, is and will be, but 'is' alone is appropriate for it, according to true reasoning, whereas 'was' and 'will be' are apt to be said in connection with the generation which proceeds in time. For they are both motions, whereas that which is immobile, always being in the same condition, is not appropriate to either come to be older or younger through time, nor did it come to be at some time, nor has it come to be now, nor will it come to be at one point, nor in any way is anything of all those things which generation attached to what move around perceptibly [appropriate] to it. But these things have come into being as forms of time which imitates everlastingness and revolves on the basis of number.

Commentators have debated what is implied by the *Timaeus*' story of a 'generation' (*genesis*) of time. For example, Vlastos influentially argued that what comes into being is *measured* time, as opposed to temporal succession as such, which can be admitted to exist already in the pre-cosmic state of affairs.²⁰ Conversely, various 'non-literal' interpreters, such as Leonardo Tarán, have pointed to Timaeus' references to "'was'" and "'will be'" as '*generated forms of time*' (*chronou gegonota eidê*), which they have taken to mean that temporal

²⁰ See 1939: 385-390 and, especially, 1964: 409-414. Vlastos' arguments have been endorsed by, among others, Johansen 2008: 468 n. 20, Sedley 2007: 104-105, and Broadie 2012: 260 n. 33.

succession as such also comes into being together with the cosmos.²¹ Yet, if temporal succession as such is only brought into being by God, it seems incoherent to describe a state of affairs *before* the cosmos existed and to use ostensibly temporal qualifiers (*prin*, *pro*) in referring to this condition. This alleged incoherence, so it is argued, can again be read as a sign that the origin-story is not meant to endorse a 'literal' generation. However, I think that there is a way to recognise the generation of 'was' and 'will be' as forms of time which also preserves the coherence of the *Timaeus*' portrayal of a *pre*-cosmic state of affairs. Timaeus says that days, nights, etc. are 'parts' (*merê*) of time, whereas 'was' and 'will be' are 'forms' (*eidê*) of time. He implies that *both* come into being together with the advent of time, in the first case by stating that the 'parts' of time do not exist before the cosmos' generation and in the second case by describing the 'forms' of time as generated and as having come into being (*gegonota*, 37e4; *gegonen*, 38a9). Further, he says that 'was' and 'will be' are 'apt to be said in connection with the generation which proceeds in time' and explains this as a result of the fact that 'was' and 'will be' are motions (*kinêseis*). I want to stake two claims on the basis of this description. Firstly, since 'was' and 'will be' are (literally) said to *be* motions, it seems misleading to identify them with what scholars refer to as 'temporal succession as such'. Temporal succession as such implies a sequence of events along a timeline (even if this sequence is not numerically analysable). But if 'was' and 'will be' are motions, then the generation of 'was' and 'will be' will not bring into being the existence of sequentiality as such, but rather the motion which underlies that sequentiality. Specifically, the generation of 'was' will bring into being the motion which occurs when one existent state of affairs changes into a non-existent state of affairs, while the generation of 'will be' will bring into being the motion which occurs when one non-existent state of affairs changes into an existent state of affairs. The fact that 'was' and 'will be' are motions suggests that temporal succession as such does not come into being together with the cosmos.

Secondly, Timaeus throughout this passage is not discriminating notions of time which exist in the cosmic versus the pre-cosmic state of affairs, but he is contrasting the mobility which characterises generation (*genesis*) with the immobility which characterises the eternal essence (*ousia*). Time is relevant to this distinction insofar as 'was' and 'will be' are types of motion. Therefore, it seems quite foreign to the spirit of the passage to extract from it the

²¹ See Tarán 1971: 378-380, as well as Baltes 1996: 83-85 and Carone 2005: 33-34.

notion that ‘time’ *qua* temporal succession actually pre-exists the cosmos, and in turn that the account does not imply a ‘literal’ generation. However, inasmuch as the passage can be used to enlighten the pre-cosmic state of affairs, a hint of sorts is offered by Timaeus’ comment that, versus the ‘is’ which is appropriate for the eternal essence, ‘was’ and ‘will be’ are appropriately said ‘in connection with the generation which proceeds *in time* (*en chronôi*)’. In the pre-cosmos, there is generation (*genesis*) (52d). However, in this state of affairs there is no time (*chronos*). Therefore, there is no generation ‘in time’. In light of this, Timaeus’ comment implies that it is not appropriate to speak of ‘was’ and ‘will be’ in the pre-cosmic phase. But, at the same time, ‘was’ and ‘will be’ are motions, and we have already seen that there is motion of a disorderly kind in the pre-cosmic state of affairs. I think that this suggests that there is a *kind of* ‘was’ and ‘will be’ in the pre-cosmic state of affairs, insofar as motion is present as such, but that it is still improper to talk of pre-cosmic ‘was’ and ‘will be’, because the motion is characterised by disorder. This in turn indicates that the generation of time entails not only the generation of temporal units (that is, days, nights, etc.), but also the generation of temporalized *motion*, meaning pastness and future-ness properly speaking. Therefore, I take it that Vlastos was correct to say that temporal succession as such exists in the pre-cosmos, whereas measured time is brought into being by God. But measured time implies not only the units to measure with, but also measurable – i.e. orderly and harmonious – movement.

After he has described what follows from the generation of time, Timaeus again steps back to compare the cosmos and the paradigm (38b6-c3):

Χρόνος δ’ οὖν μετ’ οὐρανοῦ γέγονεν, ἵνα ἅμα γεννηθέντες ἅμα καὶ λυθῶσιν, ἃν ποτε λύσις τις αὐτῶν γίγνηται, καὶ κατὰ τὸ παράδειγμα τῆς διαιωνίας φύσεως, ἵν’ ὡς ὁμοιότατος αὐτῷ κατὰ δύναμιν ᾗ· τὸ μὲν γὰρ δὴ παράδειγμα πάντα αἰῶνά ἐστιν ὄν, ὁ δ’ αὖ διὰ τέλους τὸν ἅπαντα χρόνον γεγονώς τε καὶ ὢν καὶ ἐσόμενος.

So, time has come into being together with heaven, in order that, after being begotten together, they might also be dissolved together, were a dissolution of them ever to come to be, and on the basis of the paradigm of thoroughly everlasting nature, in

order that it [sc. heaven²²] should be as similar to it as possible in accordance with [its] potential. For the paradigm is in [a state of] existence for all everlastingness, whereas the [heaven], for its part, is in [a state of] having been, being and about to be completely for all time.

Here too we need to take care in examining what is implied by the generation of time. Firstly, Timaeus underlines the fact that time and the cosmos came into being *together* (*hama*) (or, as it is sometimes confusingly put, ‘at the same time’).²³ This is initially marked by the use of *meta* + genitive and then by the following purpose-clause introduced by *hina*, in which it is stressed that the generation and hypothetical dissolution of time and the cosmos are interlinked. This indicates that there is no moment of time in which the cosmos is also not in existence, just as there is no point in the cosmos’ existence when time is not also present. Secondly, Timaeus re-introduces the fact that time was generated in order to make the cosmos more like the paradigm with respect to the latter’s everlasting nature. Specifically, he says that time has come into being ‘on the basis of the paradigm of thoroughly everlasting nature’. The description of the paradigm as ‘thoroughly everlasting’ (*diaiônios*) seems to pick up on his earlier comment that it is not possible to impose everlastingness on a generated entity *completely* (*pantelôs*) (37d5-7), which implies that, even though both the paradigm and the image are everlasting, only the paradigm is everlasting in a complete (or thorough) sense. Thirdly, Timaeus explains the similarity of the cosmos to the paradigm (cf. *gar*) by stating that, while the paradigm is in a state of existence for all everlastingness (*ton panta aiôna*), the cosmos ‘for its part, is in [a state of] having been, being and about to be completely for all time (*dia telous ton panta chronon*)’. Hence, the cosmos’ existence extends throughout *all* time, *both* from the past *and* into the future. Significantly, this temporal everlastingness of

²² Johns 2014 argues that the grammatical subject of the verb *hêi* at 38c1 and that which is denoted by *ho d’* at 38c2 can be understood as *both* [*ho*] *chronos* (which is the subject of the sentence beginning at 38b6) *and* [*ho*] *ouranos* (which appears explicitly in this sentence only in the genitive). However, it seems to make more philosophical sense in both cases if *ouranos* alone is the subject: in the first instance, because time is not maximally like the paradigm according to its potential (*kata dunamin*), but it is the name given to a constructed image of everlastingness as possessed by the paradigm; and, in the second instance, because it seems tautologous to say that time is in existence for all time.

²³ Translating *hama* as ‘at the same time’ seems to imply that there *was* a definite time (meaning a moment of time) at which the cosmos came into being (say, 1 million years). However, the notion of a definite temporal origin is immediately complicated by Timaeus’ assertion that the cosmos has been in existence from *all* time. On the different ways in which the cosmos can be understood as ‘temporally’ generated, see Chapter 4.5 below.

the cosmos is deduced from a 'literal' understanding of Timaeus' account of time, rather than any kind of 'de-literalising' manoeuvre. We will have reason to come back to this aspect in the following chapter, when we consider the defensive view that was developed by some early Platonists in connection with the *Timaeus*.

(iii) The separateness of God

I turn now to another notorious area of controversy in Timaeus' account of intelligence, namely the question of the 'literalism' of God (meaning the demiurge) as the cause of the cosmos' construction. I think that it is helpful to refer to 'God' in this context, rather than to the 'demiurge' or 'craftsman' (as is more common), since it enables us to see more clearly that the issue is centred on Plato's views in theology. The 'literalism' of God is closely linked to the 'literalism' of the origin-story as a whole. This is because, as I already noted in the introduction, any attempt to 'de-literalise' God as the cause of the cosmos' construction undermines the assumption that the cosmos is constructed at all. By taking away the constructor, the act of construction is undone in turn. Although 'non-literal' interpreters of God are not always so candid about their motivations in this respect, it is clear that the questioning of the cosmos' 'literal' generation in this constructive sense is their ultimate goal. 'Non-literal' interpreters of God *qua* the demiurge come in one of two traditional forms. Either they say that God is a metaphorical symbol for the whole or a part of the cosmos' soul, or they say that God is reducible to the Forms, be this the Forms as a general class or the particular Form of Living Being which God used as a paradigm in his construction. Let us consider each of these two possibilities one by one.

Firstly, some commentators have argued that God can be identified with the cosmos' soul, whether this is the entire rational soul or specifically the Circle of the Same which gives rise to intelligence (*nous*) as well as knowledge or understanding (*epistêmê*) (37c1-3).²⁴ As the

²⁴ Cornford (1937: 34-39) certainly regards God (meaning the demiurge) as a 'symbol' and later (1937: 205, 208) seems to identify it with the intelligent component of the cosmic soul. See also Tarán 1971: 395 n. 34 and Carone 2005: 42-51 (who lists further references on p. 211 n. 70). For 'literalist' arguments against God's identification with soul, see Mohr 1985, Johansen 2004: 79-81, and Broadie 2012: 16-24.

two kinds of this view already suggest, this identification is usually based on the fact that both God and soul are portrayed as possessing intelligence (*nous*) (39e, 47e; 37c, 46d). Both God and soul are also described as being ‘responsible’ (*aitios*), implying causal agency (28a, 28c-29a; 46d).²⁵ However, whereas God is the cause of the cosmos’ generation, soul is the cause of natural processes in the cosmos in a general sense. Moreover, while soul is brought into being and is composed of three core ingredients which imply its intermediary ontological status between being and becoming, God is said to be eternal and to count among the things which are intelligible. One brief passage draws an especially close relationship between them (37a1-2):

... τῶν νοητῶν ἀεί τε ὄντων ὑπὸ τοῦ ἀρίστου ἀρίστη γενομένη τῶν γεννηθέντων.

... [soul] came to be [the] best of the begotten things by the best of the things which are intelligible and always are.

It is worthwhile to acknowledge that God and soul – in this case, the cosmos’ soul – are likened to one another in this passage, but plainly this likeness does not imply identity. Rather, it suggests that God and the cosmic soul are the ‘best’ things in the eternal and the generated domains respectively. More generally, both God and soul can only perform their respective causal functions in the cosmos if they are regarded as distinct from one another. Hence, it is incoherent to suppose that God is a metaphorical symbol of soul, since this would destroy the coherence of the causal relations in the cosmos as a whole.

Secondly, other commentators have contended that God is in fact a personification of the Forms, meaning either the intelligible domain of the Forms or the intelligible paradigm of Living Being which contains all other Forms of living being within it.²⁶ In support of this view, they usually cite the fact that both God *qua* the demiurge and the Forms are described as intelligible (*noêtos*), so that they are at least ontologically on a par with one another (unlike

²⁵ On causality understood as intelligent responsibility, see Chapter 2.3 above.

²⁶ See e.g. Baltes 1996: 87-89, Dillon 1997: 30-33, Perl 1998, and Ferrari 2010. For counter-argument, see Johansen 2004: 81-83 and 2014.

in the case of the identification of God and soul). Furthermore, Timaeus said in the beginning of his main account that the constructor of the cosmos, insofar as he was good, wished for everything to approximate *himself* to the greatest degree (29e2-3). But shortly after this, he explains that God wished the cosmos to become similar to the most beautiful and in every way complete of the things which are cognised most of all, meaning the all-including Form of Living Being (30d1-3). Perhaps these two objects which the cosmos is supposed to resemble – so these interpreters argue – should really be seen as one and the same? Another passage which is often appealed to in support comes from a later section of Timaeus’ narration, when he is describing the third, other kind (50c7-d4):

ἐν δ’ οὖν τῷ παρόντι χρή γένη διανοηθῆναι τριττά, τὸ μὲν γινόμενον, τὸ δ’ ἐν ᾧ γίγνεται, τὸ δ’ ὅθεν ἀφομοιούμενον φύεται τὸ γινόμενον. καὶ δὴ καὶ προσεικάσαι πρέπει τὸ μὲν δεχόμενον μητρί, τὸ δ’ ὅθεν πατρί, τὴν δὲ μεταξὺ τούτων φύσιν ἐκγόνῳ...

So, at the present moment one should discriminate three kinds: the thing which comes into being, the thing *in* which it comes into being, and the thing from which, being an object of assimilation, the thing which comes into being grows. What’s more, it’s appropriate to liken the thing which receives to a *mother*, the thing from which to a *father*, and the nature between these to an *offspring*.

This passage makes no explicit mention of God (meaning the demiurge). But it does state that the Form – as ‘the thing from which, being an object of assimilation, the thing which comes into being grows’ – is appropriately compared to a *father*. However, earlier God was described as a father (of the cosmos and his cosmic products, respectively; 28c, 41a). Should this invite us to conflate God and the Forms with one another? One ‘literalist’ rebuttal of this view has been given by Thomas K. Johansen, who argues that this biological analogy only applies to the period in the pre-cosmic state of affairs, in which Forms, particulars and the third kind are all present but there is no God *qua* the demiurge.²⁷ On this reading, the temporal reference ‘at the present moment’ (*en... tōi paronti*) looks to the state *before* the divine intervention.

²⁷ See 2004: 81-83. As he writes (2004: 81), ‘it is only in the absence of the demiurge that the forms are referred to as “father”’.

Another possibility, though, is that ‘at the present moment’ refers not to the pre-cosmic condition but to the present time *of Timaeus’ narration*, i.e. his description of the nature of the third kind. On this reading, the point is not that God takes over the role of ‘father’ from the Forms in his construction of the cosmos (as Johansen puts it), but that both God and the Forms can be regarded as father-figures in different ways. Specifically, God is the father *qua* producer of the cosmos, while the Forms are likeable to a father in being that which the particular (the ‘offspring’) comes to be ‘like’.²⁸ This distinction can also help us to clarify the other evidence cited in support of the demiurge’s assimilation to the Forms, namely those passages which consider what the cosmos is made to resemble. In the former passage (29e), the implication is that the cosmos will resemble God insofar as all things in it will become maximally *good*, like he is. Conversely, in the latter passage (30c-d) Timaeus deduces that the cosmos will be assimilated to the all-comprehending paradigm because this paradigm is the most beautiful and altogether complete, and the cosmos has already been stated to be the most beautiful (29a). Beauty is here held to reside in completeness (cf. 30c5). Moreover, Timaeus has earlier said that a good demiurge is required to bring about beauty in the product (29a). Hence, God *qua* the demiurge and the paradigm *must* be kept separate from one another if goodness and beauty are to be endowed to the cosmos as a result.

3. The account of necessity (47e-69a)

Let us next advance to Timaeus’ account of the role played in the cosmos’ generation by necessity (*anagkê*). The following defence of the ‘literalism’ of this account will again comprise three parts, which focus in turn on (i) the introduction of necessity and Timaeus’ description of the ‘third, other kind’ (47e-52d), (ii) the nature of the pre-cosmos (52d-53b), and (iii) the generation of the four primary bodies of fire, air, water and earth (53b-56c).

(i) The introduction of necessity and the third kind (47e-52d)

²⁸ Notably 50c-d only says that the Forms are *like* a father, whereas the earlier descriptions of God *qua* the demiurge had said that God *is* a father (28c, 41a).

Timaeus introduces his shift in focus from the role played by intelligence to the role played by necessity in the following transitional passage (47e5-48a5):

Τὰ μὲν οὖν παρεληλυθότα τῶν εἰρημένων πλὴν βραχέων ἐπιδέδεικται τὰ διὰ νοῦ δεδημιουργημένα· δεῖ δὲ καὶ τὰ δι' ἀνάγκης γινόμενα τῷ λόγῳ παραθέσθαι. μεμειγμένη γὰρ οὔν ἡ τοῦδε τοῦ κόσμου γένεσις ἐξ ἀνάγκης τε καὶ νοῦ συστάσεως ἐγεννήθη· νοῦ δὲ ἀνάγκης ἄρχοντος τῷ πείθειν αὐτὴν τῶν γινομένων τὰ πλεῖστα ἐπὶ τὸ βέλτιστον ἄγειν, ταύτη κατὰ ταῦτά τε δι' ἀνάγκης ἡττωμένης ὑπὸ πειθοῦς ἔμφρονος οὕτω κατ' ἀρχὰς συνίστατο τόδε τὸ πᾶν.

Now, what has been discussed in the foregoing, except for a brief part, has exhibited the things which have been demiurgically produced through intelligence. But one ought to set alongside the account in addition the things which come to be through necessity. For, the generation of this cosmos arose as a mixture from necessity and the construction of intelligence. Intelligence rules necessity by persuading it to guide the majority of the things which come into being in the direction of what is best. In this way, on the basis of these things and through necessity being won over by rational persuasion, this universe was constructed initially in this way.

It is important to begin by trying to establish what, on the basis of this passage, intelligence and necessity respectively are. Firstly, intelligence is stated as that *through* which (*dia* + genitive) the things discussed in the preceding narrative have been produced as a result of demiurgy. This suggests that intelligence is the principal means by which the cosmos' generation has been explained in the first third of the main account. Since this account has mainly focussed on God's constructive activity, especially with reference to the intelligible paradigm, I take it that intelligence is being regarded as the cognitive state which essentially guides divine craft.²⁹ As for necessity, this is introduced as that *through* which (*dia* + genitive, again) certain things come into being and as that which, under the ruling persuasion of

²⁹ Some commentators have cited this passage in support of the view that God *qua* the demiurge *is* intelligence; see e.g. Menn 1995: 6-13, Dillon 1997: 32, Johansen 2008: 476 n. 42. However, taken literally the phrase *ta dia nou dedêmiourgêmena* seems to imply that *nous* and the *dêmiourgos* are distinct. Still, this might not rule out that, in God's case, the object and subject of intelligence are one and the same (in a way that anticipates Aristotle's God, cf. *Meta.* 12.7).

intelligence, guides the majority of what comes into being towards the best. Necessity is thus pictured as a steering force among the objects of becoming which can be convinced to serve ethically valent ends. Intelligence and necessity stand in an asymmetrical power-relation to one another – the one is a ruling and the other is a ruled-over party – but intelligence’s rule is importantly consensual, in the sense that it requires necessity’s willing bidding as opposed to brute force (cf. *bia* at 35a9). The term ‘necessity’ (*anagkê*) also suggests the power to force or compel things to be in a certain way but which, by its opposition to intelligence (*nous*), lacks any reasoning or moral direction of its own.

Timaeus now proceeds to prescribe a number of features which will be incorporated into the subsequent account of necessity for anyone who is explaining the cosmos’ generation on these terms, i.e. as a mixed result of intelligence and necessity. It is worthwhile to emphasise the prescriptive nature of this part of the description, since it will help us to follow Timaeus’ explanatory reasoning behind his introduction of the third kind (49a ff.). Firstly, he says that, if someone is stating how the cosmos has come into being in the way described, ‘the kind of wandering reason (*to tês planômenês eidos aitias*) will also need to be mixed in, in whose nature it is to move around’ (48a6-7). This shows that the ‘kind of wandering reason’ is a key explanandum of the account of necessity, but that this sort of reason is not identifiable with necessity itself.³⁰ One will also need to take a step back (*palin anachôrêteon*, 48a7-b1) and, after taking a different starting-point (*archê*) which is appropriate for these things, i.e. the things which make up the account of necessity, one will need to begin again from a starting-point (*palin arkteon ap’ archês*, 48b1-3, at b3). The first starting-point in the account of intelligence was identified with the reason that the constructor constructed the cosmos at all, i.e. the fact that he was good (29e-30a). The new starting-point, as we shall see in a moment, shall be constituted by the introduction of the third kind (48e-49a). Another demand for the account of necessity is that one will need to observe (*theateon*) the nature of fire, water, air and earth *before* the generation of heaven and their affections before this (48b3-5). After explaining how the prevailing understanding of these four entities is confused by the

³⁰ On this point, see Miller 2003: 66-70. On its description as ‘wandering’, see Johansen 2004: 93-95. In Chapter 2.3 above, I noted that ‘the kind of wandering reason’ can be identified with what Timaeus elsewhere calls ‘secondary reasons’ and ‘the necessary kind of reason’ (46d-e, 68e-69a).

existing natural-philosophical tradition³¹, Timaeus states that the starting-point or starting-points concerning *all* things does *not* need to be stated (*ou rhêteon*, 48c2-4) because of the difficulty posed by the present nature of the exposition, but that he will adhere to what was said at the beginning on the power of likely accounts, trying to state accounts which are no less likely than anyone else's but more so (48d). Finally, he summons a god as protector to keep him and his listeners safe, beginning 'from a strange and uncustomary narration towards the belief of likely [accounts]' (48d4-e1, at d5-6).

Next Timaeus explains that the alternative starting-point for his account of necessity will require further division than what came before, in which only two forms were distinguished. 'But now', he says, 'we will need to display a third, other kind (*triton allo genos*)' (48e3-5).³² After re-capping that the two forms, i.e. of what is and what comes into being, were sufficient to explain the relation of the paradigm and its imitation, Timaeus begins his display of the third kind as follows (49a3-6):

νῦν δὲ ὁ λόγος ἔοικεν εἰσαναγκάζειν χαλεπὸν καὶ ἀμυδρὸν εἶδος ἐπιχειρεῖν λόγοις ἐμφανίσαι. τίν' οὖν ἔχον δύναμιν καὶ φύσιν αὐτὸ ὑποληπτέον; τοιάνδε μάλιστα πάσης εἶναι γενέσεως ὑποδοχὴν αὐτὴν οἷον τιθήνην.

But now the account appears to necessitate an attempt to illustrate in words a difficult and obscure form. So, what power and nature does one need to apprehend that it has? This sort of [power and nature] above all: it is a *place of refuge* for all generation, in the manner of [a] wet-nurse.

Commentators have traditionally translated the key-word by which Timaeus refers to the third kind (or, more exactly, its power and nature) in this passage – *hupodochê* – as 'receptacle'. This translation seems to imply that the third kind is essentially a containing or receiving vessel within which the objects of becoming reside. However, as Joshua Reynolds

³¹ I will find occasion to discuss this passage (48b-c) in the following chapters. See Chapter 4.3 and Chapter 6.5 below.

³² On the translation of *allo* as 'other', meaning 'different', cf. Johansen 2015, who argues that Timaeus' account of the third kind is structured in such a way as to demonstrate that each of the three kinds are respectively different from one another.

has shown in an illuminating discussion, the term *hupodochê* cannot mean *simply* a containing or receiving vessel in this context on account of the comparison drawn with a wet-nurse (*tithênê*).³³ For, a wet-nurse is not (under any circumstances) a containing or receiving vessel as such, but rather a provision of nourishment and support for a new-born baby, whom, by virtue of that function, she contains and receives. Instead, Reynolds argues convincingly that the predominant sense of *hupodochê* in this passage must be ‘place of refuge or welcoming’, appealing to other uses of the word in fifth- and fourth-century Greek prose literature. This suggests that the third kind is essentially a sustaining base for the generative change which is undergone by objects of the second kind, i.e. the entities which make up becoming (*genesis*). Although Reynolds acknowledges in the conclusion of his paper that the word ‘receptacle’ can carry this sense in English, this seems to me a somewhat archaic usage, and I think it is preferable to adopt an alternative translation, such as ‘place of refuge’, ‘sanctuary’, or perhaps ‘safe haven’ (which incidentally captures the nautical associations of *hupodochê*).

The following chapters present Timaeus’ attempt to describe the third kind more clearly (49a-52d). These chapters contain various controversial elements which have given rise to long-standing debate on the third kind’s nature as a whole. According to a traditional scholarly division, some commentators have identified the third kind with ‘space’ (or ‘place’), while others have identified it with ‘matter’.³⁴ Still others argue that the third kind contains features which are associable with *both* ‘space’ *and* ‘matter’ or some proto-typical version of one of these.³⁵ Furthermore, the coherence of the third kind’s description has been questioned in various ways. For example, whereas Andrew Gregory has suggested that the third kind is first presented in material terms and later in a way that lends itself to a spatial conception, Kenneth Sayre has argued that Timaeus’ account is ‘incoherent from start to finish’.³⁶ Moreover, as we will explore shortly, our understanding of the third kind’s nature

³³ See Reynolds 2008. As he states (2008: 89), ‘the third kind is a ὑποδοχή in the way that a wetnurse is a ὑποδοχή. One must therefore determine how it is that a wetnurse is a ὑποδοχή in order to understand why Plato identifies the third kind as such’.

³⁴ For a helpful overview of various positions, see Miller 2003: 19-36. Other valuable contributions in recent years include Gregory 2000: 187-240, Harte 2002: 247-264, Sayre 2003, Johansen 2004: 117-136, Harte 2010, Broadie 2012: 185-242, Sattler 2012, Jelinek 2015, Beere 2016, and Buckels 2016.

³⁵ For a mixed view, see e.g. Johansen 2004: 117-136 and Jelinek 2015, as well as Aristotle, *Phys.* 4.2, 209b13-14. Sattler 2012 and Buckels 2016 develop differing interpretations which link the third kind to ‘space’, while Beere 2016 argues that the third kind is a ‘material base’ without itself being ‘matter’.

³⁶ See Gregory 2000: 187-240 and Sayre 2003, with quotation from p. 61.

has implications for our understanding of the nature of the pre-cosmos, which in turn has implications for our understanding of the way in which God initially intervened to generate the primary bodies. Hence, the issue of the coherence of the third kind is key to the broader coherence of the account of necessity, and therefrom the coherence of the origin-story as a whole.

I argue that the third kind is essentially a spatial and immaterial – in the sense of ‘non-bodily’ – substrate which is portrayed coherently throughout Timaeus’ account of necessity. At the same time, I want to stress that the third kind is only characterised as such in order to account for the nature of the things which are *in* the third kind, meaning the things which come into being through necessity; the third kind is not inquired into for its own sake. In order to demonstrate both of these points, it will be helpful to go through some of the controversial passages of the third kind’s description. The first effort to speak of the third kind more clearly involves a prior puzzle (*aporia*) concerning the way that we refer to the four primary bodies within the third kind (49b-50a). Although the details of this puzzle are historically contested³⁷, I take it that Timaeus is asserting that the third kind alone should be denoted as ‘this’ (*tode*) and ‘that’ (*touto*), in opposition to the four primary bodies which are more safely referred to as ‘this sort of thing’ (*toiouton*). On this view, the third kind is presented as a stable and unchanging base, in contrast with the primary bodies which undergo continuous transformation. The second effort features an image of a person moulding gold into a series of different shapes (50a-b). Although this passage is sometimes cited in support of the third kind’s materiality³⁸, it seems clear that its purpose is again to emphasise the third kind’s stability, since Timaeus says that it is safer to refer to the changing forms as ‘gold’ versus the particular shape in question (e.g. ‘triangle’). This is also supported by the following passage, in which Timaeus says that ‘the same account (*ho autos dê logos*) also applies to the nature which receives all the bodies’ (50b5-6). As he says here (50b6-c4):

ταύτὸν αὐτὴν αἰεὶ προσρητέον· ἐκ γὰρ τῆς ἑαυτῆς τὸ παράπαν οὐκ ἐξίσταται
δυνάμεως—δέχεται τε γὰρ αἰεὶ τὰ πάντα, καὶ μορφήν οὐδεμίαν ποτὲ οὐδενὶ τῶν

³⁷ For a helpful summary of the debate, see Zeyl 2000: lvi-lix.

³⁸ So, e.g., Zeyl 2000: lxii and the views listed on p. lvi, n. 120. For an excellent exegesis of the analogy, see Mohr 2005: 102-110, as well as Gill 1987: 45-47 and Johansen 2004: 122 n. 8.

εἰσιόντων ὁμοίαν εἵληφεν οὐδαμῇ οὐδαμῶς· ἐκμαγεῖον γὰρ φύσει παντὶ κεῖται, κινούμενόν τε καὶ διασχηματιζόμενον ὑπὸ τῶν εἰσιόντων, φαίνεται δὲ δι' ἐκεῖνα ἄλλοτε ἄλλοιον...

On each occasion one ought to address it as the same thing. For, it never deviates in any way from its own power, since it both receives all the bodies on each occasion and has never in any way taken on any apparent shape at all which is like any of the things which enter into it. For, it lies as an impressive base by nature for anything, being moved and being variously shaped by the things which enter into it, and it appears differently on different occasions because of them.

This description shows that the third kind's power – which, as we have seen, is most of all to be a place of refuge for all generation (49a) – is essentially fixed and unaltering in spite of the apparent changes which it admits as a result of the things within it. Moreover, it is in this role as a receiving power that the third kind is likeable to a mother (50c-d). Next, Timaeus explains that, *if* the imprinting (*ektupôma*), i.e. of the Form as a father upon the particular as an offspring, is to be characterised by visible diversity, *then* the thing in which the thing which is imprinted inheres would only be well-prepared if it is itself without the apparent shape (*amorphon*) of all those forms which it is to receive from elsewhere (50d4-e1). In other words, the third kind must itself lack any features of shape and character if it is to perform its receiving function properly, i.e. as the site in which particulars exist as imitations of the Forms. In support of this aspect, Timaeus appeals to two further comparisons, of which the first is with the concoction of fragrances and the second is with those who impress forms onto soft materials (50e). The third kind is relevant to the concoction of fragrances insofar as the liquids which receive the smells have to be as odourless as possible. Similarly, the third kind is like a plastic base insofar as it has to have no configuration of its own which will affect the shape of the things that are composed from it. Thus, again Timaeus' point is that the third kind is inherently featureless, and this *in order that* it can successfully serve as a host for the Form-particular interaction. In particular, the fact that the third kind lacks any shape or visibility of its own means that it should not be identified with any of the four primary bodies (51a-b). I will come back to this difference below, when we consider the nature of God's materials in the pre-cosmic state of affairs.

After an intervening argument for the separation of Forms from particulars (51b-e), Timaeus differentiates the three kinds in order and recognises the third kind's essential relationship to 'place' (*chôra*). Firstly, he says that the third kind 'is the kind which is *of place* on each occasion' (*on to tês chôras aei*) (52a8). This indicates that, in opposition to both the Form (which does not occupy any kind of place) and the particular (which comes into being in a certain space and is destroyed again out of it), the third kind is that which supplies place, meaning the room or spatial location *in* which a particular thing can exist. Further, it does not admit perishing but provides a site (*hedra*) for all of the things which possess becoming (51a8-b1). Timaeus also emphasises the immense difficulty of apprehending it, stating that 'in looking at it we are in a dream-state and we say that it is somehow necessary that anything in existence is in a certain space and maintains a certain place, but that what is neither on earth nor anywhere in heaven is nothing at all' (51b3-5). Again, this suggests that the third kind is invoked in order to explain how the objects of becoming are spatially located, even though that space is differentiable from the objects themselves. Finally, Timaeus summarises that, according to his account, 'what is and place and generation exist, three things in three ways, also before heaven came into being' (52d3-4). This clarifies that the third kind also exists in the pre-cosmic no less than the cosmic state of affairs, which is just what we should expect in view of its entirely stable and underlying nature.

(ii) The nature of the pre-cosmos (52d-53b)

I now proceed to examine Timaeus' description of the pre-cosmic state of affairs. This will allow us to clarify some features of the third kind's nature and pave the way for our analysis of the manner of God's initial intervention with respect to the four primary bodies. Timaeus describes the pre-cosmic condition as follows (52d4-53a6):

τὴν δὲ δὴ γενέσεως τιθήνην ὑγραινόμενην καὶ πυρουμένην καὶ τὰς γῆς τε καὶ ἀέρος μορφὰς δεχομένην, καὶ ὅσα ἄλλα τούτοις πάθη συνέπεται πάσχουσιν, παντοδαπὴν μὲν ἰδεῖν φαίνεσθαι, διὰ δὲ τὸ μήθ' ὁμοίων δυνάμεων μήτε ἰσορρόπων ἐμπίμπλασθαι κατ' οὐδὲν αὐτῆς ἰσορροπεῖν, ἀλλ' ἀνωμάλως πάντῃ ταλαντούμενην σείεσθαι μὲν ὑπ' ἐκείνων αὐτήν, κινουμένην δ' αὖ πάλιν ἐκεῖνα σείειν· τὰ δὲ κινούμενα ἄλλα ἄλλοσε

ἀεὶ φέρεσθαι διακρινόμενα, ὥσπερ τὰ ὑπὸ τῶν πλοκάνων τε καὶ ὀργάνων τῶν περὶ τὴν τοῦ σίτου κάθαρσιν σειόμενα καὶ ἀνικνύμενα τὰ μὲν πυκνὰ καὶ βαρέα ἄλλη, τὰ δὲ μανὰ καὶ κοῦφα εἰς ἑτέραν ἵζει φερόμενα ἔδραν· τότε οὕτω τὰ τέτταρα γένη σειόμενα ὑπὸ τῆς δεξαμενῆς κινουμένης αὐτῆς οἷον ὀργάνου σεισμὸν παρέχοντος, τὰ μὲν ἀνομοιότατα πλεῖστον αὐτὰ ἀφ' αὐτῶν ὀρίζειν, τὰ δὲ ὁμοιότατα μάλιστα εἰς ταύτὸν συνωθεῖν...

The wet-nurse of generation is made wet and set on fire and receives the apparent shapes of earth and air, and it admits all other affections which accompany these things. It appears diverse to behold, but, on account of the fact that it is filled up with powers that are neither alike nor even in strength, it does not possess equal weight through any of itself. Instead, swaying irregularly in every way, it is itself shaken by those things and, being moved, it shakes them back in turn. The things, being moved in different directions, are carried continuously and separate out, just like things are shaken and sifted out by winnowing-baskets and devices used in the cleaning of wheat. The dense and heavy [things] [go] in one direction, while the insubstantial and light ones, being carried off, take up a different position. At that time the four kinds were shaken in this way by the receiving [nature], which itself moves in the manner of a device that causes shaking, dividing the things which are most unlike at the greatest distance from themselves and squeezing together the things which are most alike especially into the same [place].

Commentators have debated various aspects of the *Timaeus*' account of the pre-cosmos. More specifically, they have contested which features of the account of necessity should be understood to pre-exist the cosmos' generation and which features should be understood to come into being only as a result of the divine intervention. For example, Allan Silverman has challenged the view that *matter*, understood as *body* (*sôma*) or corporeality as such, should be regarded as a primitive (that is, pre-cosmic) entity within Plato's ontology.³⁹ Along somewhat similar lines, Thomas K. Johansen has argued that *necessity* (*anagkê*) does not exist in the pre-cosmos, but only comes into being once God has established the four primary bodies of fire, earth, water and air.⁴⁰ On this basis, he assumes that the primary bodies do not

³⁹ Silverman 1992.

⁴⁰ See Johansen 2004: 92-116, at 95-99. As he writes (2004: 97), '[n]ecessity is a product of the creation, not a precondition of it. There are no necessitating causes in the pre-cosmos because there is nothing in the pre-cosmos with sufficient reality to possess causal efficacy. Necessary processes only come into being once the demiurge has created the 'simple' bodies. Necessity is a function of an ordered universe in so far as it is only once bodies have determinate characteristics that they can act as necessitating causes. It is then a further stage

possess any internal properties of their own or proper motions in the pre-cosmic state, since they do not possess any determinate behaviour in this condition. Conversely, Elizabeth Jelinek and Brian Prince have contended in different ways that necessity *does* exist independently of intelligence in the pre-cosmos as a non-rational (or ‘a-teleological’) cause.⁴¹

I wish to defend a ‘literal’ interpretation of the pre-cosmos and thereby demonstrate the coherence of the account of necessity as a whole. In order to do this, I propose that we need to differentiate carefully about the language we use in referring to the pre-cosmic condition. The pre-cosmos, as we shall see shortly, is distinguished by its total lack of proportion and measure (*alogôs kai ametrôs*, 53a9). However, this is not quite the same as saying that nothing inhered in the pre-cosmic materials in any way. Importantly, unlike an *ex nihilo* model of creation, in the *Timaeus*’ origin-story there *were* raw materials which were already in existence – the question is what kind of things these materials originally were. Now, in his earlier summary of God’s constructive act, Timaeus had said that God took control of ‘all that was visible, not in a state of rest but moving in an un-harmonious and un-arranged way’, and guided it from a state which lacked any arrangement to assume a state which is characterised by arrangement (30a). I also noted above that some interpreters – both ‘literal’ and ‘non-literal’ – have struggled to accept the notion that the raw materials were in any way already visible before the divine intervention.⁴² The first claim I want to stake is that this initial description coheres *exactly* with the lengthier account of the pre-cosmic state of affairs that we encounter here. For example, Timaeus says that the ‘wet-nurse of generation’, meaning the third kind, is variously affected by the things *in* the third kind and that, as a result, it ‘appears various to behold’. He also notes that, because of the uneven powers which inhere in the third kind, it does not possess any equal distribution of weight but, ‘swaying irregularly in every way, it is itself shaken by those things and, being moved, it shakes them back in turn’. These two descriptions correspond closely to the earlier references to the visible nature of the pre-cosmic materials and their disorderly motion. Therefore, it does not seem quite right to say, with Vlastos, that the reference to pre-cosmic visibility constitutes an *un-explicated* obscurity, since the visible variety of the pre-cosmos is explained by the continuous changes

in the creation story when the demiurge takes over the necessary processes and employs them as contributory causes in creating a fully ordered cosmos.’

⁴¹ Jelinek 2011 and Prince 2014.

⁴² See §3.2.1. above.

that are undergone in it. Nor does it seem wholly correct to say, with Johansen, that the primary bodies do not possess *any* internal properties of their own before the divine intervention. The pre-cosmic materials possess an inherent visibility and perceptibility, as well as a distinguishable weight and substantiality, that are owed to their own natures, independently of what is gifted to them by the demiurge.

Secondly, since the pre-cosmic materials are described as naturally visible, this indicates that they already have a vague *bodily* nature before the divine intervention. Therefore, it does not seem right to argue, as did Silverman, that matter, meaning body as such, is not a primitive constituent of Plato's ontology. The assumed pre-existence of body also coheres with the earlier description, in which, as I noted there, Timaeus says that God fashioned intelligence in soul and soul in body, but he does not state that God fashioned body, i.e. from a pre-existent state in which there was no body before. This also makes good sense of Timaeus' account of the separating motions in the pre-cosmos, in which he says that '[t]he dense and heavy [things] [go] in one direction, while the insubstantial and light ones, being carried off, take up a different position'. For density and heaviness, as well as insubstantiality and lightness, are characteristics that are naturally attached to bodies, as opposed to entities which lack any corporeal make-up whatsoever.⁴³ Thus, I take it that body as such inheres in the pre-cosmic materials, even though the state of these bodies is bound to be completely unintelligible and unable to be analysed in mathematical terms. For this complies with the fact that the primary bodies were lacking in proportionality and measure prior to the divine intervention.

Thirdly, the assumption that body already exists in the pre-cosmic materials clarifies that the third kind cannot itself be a bodily entity, and in this sense cannot be identified with 'matter'.⁴⁴ Rather, as we have already seen from the main description of the third kind (49a-52d), the third kind is introduced from the need to account for the fact that the objects of

⁴³ Cf. Chapter 1, n. 29 above, in which it was noted that, in the context of the final argument for soul's immortality in the *Phaedo*, Plato does not appear to differentiate sharply between the properties which are possessed by objects and the objects themselves.

⁴⁴ However, this does not mean that Aristotle was mistaken to write, as he did, that 'Plato says that matter (*hylê*) and place (*chôra*) are the same thing (*tauto*) in the *Timaeus*' (*Phys.* 4.2, 209b13-14). It depends on our understanding of matter. If 'matter' is identified with 'body', then Aristotle's observation does not hold. But if 'matter' is understood as an unchanging substrate, then certain features what Aristotle ascribes to 'matter' are pre-empted by the third kind. For a recent argument that Plato lacked a conception of matter, see van Riel 2021.

becoming necessarily exist *in* a certain space and occupy a certain place if they are to exist as changing particulars at all. Moreover, the third kind was said to be without visibility, perceptibility and shape of any kind, so that the particular can be an imitation of the Form, whereas we have seen that visibility and perceptibility are traits that are closely tied to the domain of the bodily. This can also help us to make sense of the one of the most puzzling features of the third kind, namely its shaking motion (*kinêsis*). For instance, Kenneth Sayre has objected to the third kind's description that, if the third kind is essentially space, then 'the thought of Space itself as shaking is literally unintelligible'.⁴⁵ However, as I have argued, the third kind is not itself *identifiable* with space but it is posited to provide a supportive base for the objects of becoming to *be* en-spaced. This supportive function presumably extends to these objects' spatially located motions. Hence, the shaking motion which is distinctive of the third kind is necessarily predicated in order to sustain the motions which are possessed by the contents of the third kind in turn. This also makes sense of the fact that this shaking motion produces separation of the third kind's contents with respect to their *location*, 'dividing the things which are most unlike *at the greatest distance from themselves* and squeezing together the things which are most alike *especially into the same [place]*'. Hence, there is no need to see any discrepancy in the presentation of the third kind between the earlier and later sections of its description.

Does this understanding of the third kind and the pre-cosmic state of affairs mean that *necessity* (*anagkê*) should be taken to exist already before the divine intervention? This depends crucially on what we understand necessity itself to be. As I argued above, necessity is first introduced as a guiding force among the objects of becoming which also compels them to be in a certain way. I also noted that, although the 'kind of wandering reason' is a prescribed constituent of the account of necessity, it does not appear to be identified with necessity itself. Nor is necessity anywhere identified with the third kind, the introduction of which constitutes the new and alternative starting-point for explaining the role played by necessity in the cosmos' generation. It may also be significant that necessity (*anagkê*) is not mentioned *at all* in Timaeus' main narration of the pre-cosmos, which encompasses his

⁴⁵ 2003: 62.

display of the third kind and the pre-cosmic state of affairs (49a-53b).⁴⁶ However, there also seems to be a problem with the notion that necessity does not exist in any way in the pre-cosmos, since this suggests that necessity is one of the things which is brought into being by intelligence. But Timaeus only says that intelligence *rules* necessity by persuading it to guide the majority of the things which come into being towards the best. I argue that there is a sense in which necessity pre-exists the cosmos but another sense in which it comes into being together with the cosmos. Necessity is pre-existent insofar as it is something that attaches to the objects of becoming, so as to make them what they unavoidably are. But necessity only becomes causally efficacious when it has been mixed together with intelligence. Thus, there are no necessary causes (properly speaking) in the pre-cosmos, as Johansen argued, but necessity as such is not a product of the demiurge, as Jelinek and Prince objected.⁴⁷ The absence of any causal efficacy in the pre-cosmos helps to make this condition remain one which lacks arrangement or mathematical intelligibility of any kind.

(iii) The generation of the primary bodies (53b-56c)

Having described the nature of the pre-cosmos, Timaeus advances to summarise the way in which God first intervened upon the raw materials (53a7-b7):

καὶ τὸ μὲν δὴ πρὸ τούτου πάντα ταῦτ' εἶχεν ἀλόγως καὶ ἀμέτρως· ὅτε δ' ἐπεχειρεῖτο κοσμεῖσθαι τὸ πᾶν, πῦρ πρῶτον καὶ ὕδωρ καὶ γῆν καὶ ἀέρα, ἔχνη μὲν ἔχοντα αὐτῶν ἅττα, παντάπασί γε μὴν διακείμενα ὥσπερ εἰκὸς ἔχειν ἅπαν ὅταν ἀπὴ τινος θεός, οὕτω δὴ τότε πεφυκότα ταῦτα πρῶτον διεσχηματίσατο εἶδεσί τε καὶ ἀριθμοῖς. τὸ δὲ

⁴⁶ After its introduction at 47e-48a, necessity appears again in the account of the primary bodies' generation at 53c3, c6, d5, 55e2, e7, 56a7, and c5. Thanks go to Thomas K. Johansen for drawing my attention to this point.

⁴⁷ A cause in a Platonic context is something or someone that is responsible for something (*aitios*, implying intelligence; for defence of this understanding of Platonic causation, see Chapter 2.3 above). But intelligence is absent from the pre-cosmos. So, the only kinds of causes which may be present are bodily causes, i.e. the things which are co-operatively or supportively responsible (*sunaitios*). But the primary bodies which constitute these causes are not properly formed in this state. Consequently, there are no *sunaitia* in the pre-cosmos, properly speaking, meaning that a natural philosopher will not be able to discover secondary or necessary reasons (*aitiai*) from inspecting the world in this condition. A cause for Plato implies an observer who has the rational capacity to discover it. None of this rules out, however, that there *is* causality in the (non-Platonic) sense of actions which entail effects (e.g. transformation of state and place) in the pre-cosmic state.

ἢ δυνατόν ὡς κάλλιστα ἄριστα τε ἐξ οὐχ οὕτως ἐχόντων τὸν θεὸν αὐτὰ συνιστάναι, παρὰ πάντα ἡμῖν ὡς ἀεὶ τοῦτο λεγόμενον ὑπαρχέτω.

Indeed, before this, all these things were in a condition without proportion or measure. When the ordering of the universe was undertaken, fire and water and earth and air, although being traces somewhat of themselves, were first altogether in a state as anything is likely to be in when God is absent from it. Being naturally so at that time, these things were first variously configured with forms and numbers. In the manner possible, God established them to be maximally beautiful and good from their not being in this condition – let this statement of ours be in place always above and beyond all things.

The specific manner in which God (meaning the demiurge) generated the four primary bodies is guided by our understanding of the nature of the pre-cosmos. As we have seen, the pre-cosmic versions of fire, earth, air and water already possess certain distinguishable properties which are owed to their individual natures, disorderly motion and an imprecise bodily make-up before the divine intervention. However, as Timaeus emphasises, they do not possess any proportion or measure in this condition. This understanding agrees with the description here that the four primary bodies were ‘traces somewhat of themselves’, which suggests that they bore a vague resemblance to their condition in the cosmic state of affairs. Further, he describes that ‘these things were first variously configured with forms and numbers’. The main verb *diaschêmatizato* (from *dia-schêmatizein*) which appears in this sentence is used on only one other occasion in Timaeus’ account, in which it is said that the third kind, being an impressive base for anything by nature, ‘is both moved and *variously configured* (*diaschêmatizomenon*) by the things which enter into it’ (50c3, quoted above).⁴⁸ Since the agents of the verb in this case are the four primary bodies, it seems unlikely that the force of the action itself denotes an intelligent or ethically directed act. Rather, the force of the intelligent activity seems to fall on the two datives which describe *how* the primary bodies were individually shaped, i.e. by the introduction of forms and numbers.⁴⁹ Thus, whereas the primary bodies do not possess a proper form (*eidos*) and numerical intelligibility (*arithmoi*) in

⁴⁸ Since the third kind itself lacks an inherent configuration, I take it that the force of *dia-* in the verb is distributive (i.e. ‘configure in various ways’) rather than intensifying (‘i.e. configure thoroughly’, which implies that the four kinds had a configuration before). Cf. *diataxin* at 53b8.

⁴⁹ On this point, see also Mohr 2005: 112-120, at 114-117, and Jelinek 2011: 294-297.

their original condition, these aspects are first endowed to them by the demiurge. By the imposition of mathematical forms, the primary bodies were established to be maximally good and beautiful from not being in this condition.

After summarising God's initial activity, Timaeus commences his account of the four bodies' generation as follows (53b7-c8):

νῦν δ' οὖν τὴν διάταξιν αὐτῶν ἐπιχειρητέον ἐκάστων καὶ γένεσιν ἀήθει λόγῳ πρὸς ὑμᾶς δηλοῦν, ἀλλὰ γὰρ ἐπεὶ μετέχετε τῶν κατὰ παιδευσιν ὁδῶν δι' ὧν ἐνδείκνυσθαι τὰ λεγόμενα ἀνάγκη, συνέψεσθε.

Πρῶτον μὲν δὴ πῦρ καὶ γῆ καὶ ὕδωρ καὶ ἀήρ ὅτι σώματά ἐστι, δῆλόν που καὶ παντί· τὸ δὲ τοῦ σώματος εἶδος πᾶν καὶ βάθος ἔχει. τὸ δὲ βάθος αὖ πᾶσα ἀνάγκη τὴν ἐπίπεδον περιειληφέναι φύσιν· ἡ δὲ ὀρθὴ τῆς ἐπιπέδου βάσεως ἐκ τριγώνων συνέστηκεν.

So now one ought to attempt to show the individual arrangement and generation of each of them to you in an unusual account. But, since you have a share, on account of your erudition, of the ways through which it's necessary for what is said to be indicated, you'll follow along.

First, the fact that fire, earth, water and air are *bodies* is clear, I suppose, in fact to anyone. Every form of a body also has *depth*. Depth, in turn, is by all necessity circumscribed by a *plane* nature. A straight [plane nature] of a plane surface is composed from *triangles*.

The main point I wish to highlight in this and the following description is that Timaeus does not actually *narrate* God's construction of the four primary bodies, as he did earlier in the case of (most notably) the construction of the cosmos' body and its soul. Rather, he adopts an *analytical* viewpoint on the four bodies' generation, which begins from the observation that they are all bodies (*sômata*).⁵⁰ I will come back to the significance of this perspective when we come to examine the early Platonists' reaction to the *Timaeus*' origin-story in the following chapter (Chapter 4). Timaeus also acknowledges the unusual nature of his account but maintains that it will be possible for his listeners to follow along because of their erudition

⁵⁰ The term 'analytical' in this sentence is chosen to allude to the technical (mathematical) meaning of 'analysis' as a deductive procedure in Greek geometry. For discussion of analysis and its relevance to this context, see Chapter 4.3 and Chapter 6 *passim*.

(*paideusis*). The subsequent narration now takes the form of a geometrical investigation.⁵¹ To begin with, Timaeus states that all triangles take as their starting-point two kinds of right-angled triangles, i.e. the right-angled isosceles and the right-angled scalene (53c-d). Then, he says that one ought to say the four most beautiful types of bodies which are unlike one another but which are able to dissolve in and out of one another, in order to land on the truth concerning the generation of the primary bodies (53d-e). Next, he posits the two most beautiful types of triangles to be the right-angled isosceles and the half-equilateral (54a-b). After an intervening comment in which he notes that one of the four bodies composed from these two triangles is not able to dissolve in and out of the others, Timaeus reveals the four most beautiful bodily forms to be the tetrahedron (or pyramid), the octahedron, the icosahedron, and the cube (54d-55c). He also notes that a fifth form – the dodecahedron – was used by God to delineate the entire universe (55c).⁵² Finally, after considering the possibility that there are *five* cosmoi instead of one as a result of his reasoning⁵³, Timaeus assigns each of the four most beautiful types of bodies to each of the four primary bodies of fire, air, water and earth (55c-56c).

Timaeus also reflects on the generation of the primary bodies at the end of his account of necessity (69b3-c3):

ὥσπερ γὰρ οὖν καὶ κατ' ἀρχὰς ἐλέχθη, ταῦτα ἀτάκτως ἔχοντα ὁ θεὸς ἐν ἐκάστῳ τε αὐτῷ πρὸς αὐτὸ καὶ πρὸς ἄλληλα συμμετρίας ἐνεποίησεν, ὅσας τε καὶ ὅπῃ δυνατόν ἦν ἀνάλογα καὶ σύμμετρα εἶναι. τότε γὰρ οὔτε τούτων, ὅσον μὴ τύχη, τι μετεῖχεν, οὔτε τὸ παράπαν ὀνομάσαι τῶν νῦν ὀνομαζομένων ἀξιόλογον ἦν οὐδέν, οἷον πῦρ καὶ ὕδωρ καὶ εἴ τι τῶν ἄλλων· ἀλλὰ πάντα ταῦτα πρῶτον διεκόσμησεν, ἔπειτ' ἐκ τούτων πᾶν τόδε συνεστήσατο, ζῶον ἐν ζῳᾷ ἔχον τὰ πάντα ἐν ἑαυτῷ θνητὰ ἀθάνατά τε.

So, just as was also stated at the beginning, these things were in an un-arranged state. God made commensurate relations to exist in each one of them with respect to itself and each other, as many and in whatever way it was possible [for them] to be

⁵¹ For helpful discussions of this section, see Cornford 1937: 210-239, Artmann-Schäffer 1993, Gregory 2000: 194-208, Harte 2002: 235-247, Paparazzo 2013, and Paparazzo 2015.

⁵² Commentators have traditionally struggled to square this description with Timaeus' earlier comment that the cosmos is made into a *sphere* because the sphere is the shape that is most like itself (33b). See, however, Kotrč 1981.

⁵³ See Paparazzo 2011, as well as the intriguing alternative reading of this passage in Rashed 2013.

proportionate and commensurate. For at that time, neither did [each one] have a share of these things at all, except by chance, nor was anything of what is named now worthy of naming in its entirety, such as 'fire' and 'water' and any of the others. But first he thoroughly organised all these things, then he constructed this universe out of them: one living being containing all the living beings within itself, mortal and immortal.

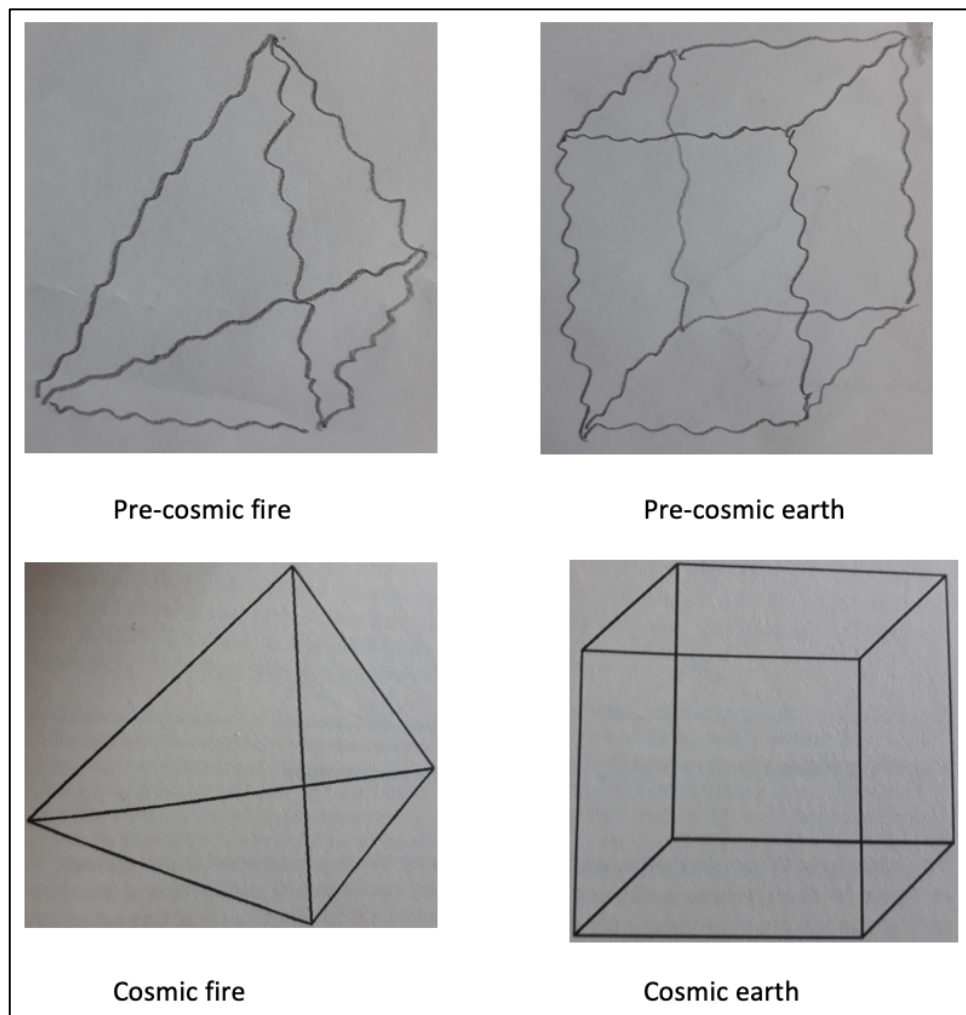
The introduction of commensurate relations (*symmetriai*) to the four primary bodies can be understood to convey the same activity as the earlier description of the individual shaping of fire, earth, air and water with forms and numbers (53b). Accordingly, God's constructive act in this phase consisted in endowing the primary bodies with a mathematically intelligible nature, so that they came to be as good and beautiful as they were able to be. Timaeus also implies that the demiurge's generation entails a linguistic generation as well, insofar as the things which are described in the pre-cosmic state come to be worthy of being named such *in full* (to *parapan*) after the divine intervention. Still, since he does not actually narrate the process of the bodies' construction, we may wonder precisely *how* God went about imposing mathematical form on the originally inchoate bodies of the four kinds. I offer two possible reconstructions. One possibility, which has also been suggested by Barbara Sattler, is that the lengths of the primary bodies in their pre-cosmic condition are originally conceived as crooked or curved in ways that make them immune to mathematical analysis.⁵⁴ God's action would then consist in straightening the lengths of each body's side, so that they acquired a formal precision which also made them mathematically comprehensible. Another possibility, though, is that the pre-cosmic versions of fire, earth, air and water *can* fleetingly obtain the formal shapes which they acquire in the cosmic condition, but that, without the intervention of intelligence, these shapes are unable to be retained for any duration of time before they have changed into another shape or kind.⁵⁵ This re-construction might seem to cohere more

⁵⁴ See Sattler 2012: 179-180, cf. 187-188: 'A shape that has *logos* seems to be one that can be grasped completely by *logos*, i.e. that can be completely accounted for in a rational way. Given the mathematics of Plato's time, this is only possible for *perfect* geometrical shapes (see 53e-54b), as for instance the perfect tetrahedra characterizing fire. As a consequence, a shape that is *alogos* cannot be completely accounted for in a rational way. In this sense such shapes will be imperfect, as are, for instances, shapes that consist of crooked lines that cannot be dissolved into straight or simple curved ones. In the mathematics of Plato's time, such figures would allow neither for a precise calculation of the content of their area, nor for a rational relation of their sides to each other. Accordingly, such figures are *ametros*, because no side, or part of a side, could be used as a measure for the other sides.'

⁵⁵ I owe this possibility to a suggestion from Michael Rhodes.

easily with Timaeus' admission that there *is* beauty in the pre-cosmic state of affairs, but that this occurs by chance (*tuchê*) as opposed to via the intervention of intelligence through soul (cf. 30a). Arguably these two possibilities are not mutually exclusive, since the pre-cosmic versions of the primary bodies might admit a variety of approximate shapes. On either score, this understanding of the primary bodies' generation should suffice to demonstrate the coherence of the account of necessity as a whole.

Figure: A possible re-construction of the primary bodies in the pre-cosmos, compared with their cosmic counterparts (illustrated via the examples of fire and earth)



4. The openness of 'literalism'

The preceding two sections have defended the full and unqualified coherence – and so ‘literalism’ – of the origin-story as a whole. Taken together, they should leave beyond all doubt that the *Timaeus*’ main account presents a story of generation (*genesis*), understood as the cosmos’ transition from a prior state of disorder to a posterior and present-day state of order.⁵⁶ All of the features of this origin-story – such as God *qua* the demiurge, the paradigm and the pre-cosmic state of affairs – are thus intended to be understood ‘literally’, meaning that they are supposed to be interpreted in the way that they are presented at the surface-level of the narration. Yet, by way of conclusion, it is worth reflecting on how much – as well as how little – this full-blooded commitment to ‘literalism’ actually binds us to in terms of the origin-story’s broader appreciation. For, as we shall see in the following chapter, both ancient and modern readers of the *Timaeus* have debated various ways in which this origin-story should (and should not) be understood. For example, was the *Timaeus* intended to endorse the view that the cosmos has come into being *in time*, meaning at a particular point in time? Did its author presume that the cosmos came into being through a number of successive phases? Or was the *Timaeus*’ origin-story composed in order to explain the complex nature and causal relations within the cosmos, but without actually meaning to convey that it has been generated in some temporal sense? As I have applied the language of ‘literalism’ exclusively to the textual features of *Timaeus*’ narration, it appears that, even on a ‘literal’ reading of the origin-story, all of these questions remain open to be answered in various ways and interrogated on their own terms. I will take them on in the following discussion, specifically by re-examining how a group of Plato’s early students in the Academy defended the understanding of generation presented in the *Timaeus*.

⁵⁶ This conclusion does not entail, however, that *all* uses of *genesis* and *gignesthai* in the *Timaeus* convey generation in the sense of origination or ‘coming into being’. For example, many ‘non-literal’ interpreters have construed the verb *gegonen* at 27b7 (and, in particular, its perfect force) to indicate generation only in the sense of metaphysical dependency, arguing therefrom that the origin-story does not truly subscribe to the cosmos’ origination at all. See, especially, Cornford 1937: 24-27, whose view is anticipated by Taylor 1928: 66-67 and endorsed in, e.g., Tarán 1971: 382-384, Baltes 1996: 91-94 and Carone 2005: 31-35. However, I think that it is possible to retain a ‘literal’ commitment to the origin-story whilst also accepting that the perfect *gegonen* carries a predominant metaphysical force. Thus construed, 28b deduces that the cosmos is generated (meaning that it belongs to the ontological domain of what comes into being) from its visible and perceptible nature, while 28c-29a explains its generation (in the sense of coming into being) by a demiurgic cause.

Finally in this chapter, I think that the preceding discussion can allow us to reflect on the terminology which is traditionally opposed to ‘literalism’ in the modern scholarly debate, most notably that of ‘metaphor’ and ‘allegory’. Often these terms are used as synonyms for one another, which suggests that there is no meaningful difference between them.⁵⁷ However, just as the language of ‘literalism’ has traditionally been applied across at least two distinguishable levels of interpretation – by referring *both* to the constituent features of Timaeus’ speech and *the* broader allegiances of this speech on the part of its author – so too the interchangeable talk of ‘metaphor’ and ‘allegory’ obscures an important distinction. In natural language the literal and the metaphorical are commonly viewed as opposed and contrary to each other. Thus, something cannot (usually) be interpreted literally and metaphorically at the same time.⁵⁸ The same cannot necessarily be said, though, of the relationship between the literal and the allegorical. The term ‘allegory’ alludes to a broad cultural tradition which has its origins in the ancient interpretation of Greek myths and mythical figures, often to rationalising or natural-philosophising ends.⁵⁹ Allegorical narratives are typically characterised by some kind of didactic agenda, such that the true or full significance of the narrative is only grasped by appreciating what this narrative is supposed to stand for or represent. But the allegorical component which can be read into some narratives – such as, most classically in a Platonic context, the ‘allegories’ of the Divided Line and the Cave in the *Republic* – is importantly not opposed to a ‘literal’ understanding of these narratives’ contents, but is rather grounded in and derived from it. Allegory can thus be differentiated from metaphor insofar as it is not opposed to literalism, but actually harmonised with and dependent on it. So, even though it is a separate and further question whether the *Timaeus*’ origin-story in any way qualifies as an allegory, we may say that a ‘literal’ understanding of this story does not preclude the potential for allegorical

⁵⁷ See, by way of example, Tarán 1971 (who uses both terms interchangeably).

⁵⁸ Here I am side-stepping those cases in English in which ‘literally’ is used to emphasise (often to an exaggerated degree) statements which are *not* in fact meant literally, as in the opening sentence of James Joyce’s short story *The Dead*: ‘Lily, the caretaker’s daughter, was literally run off her feet.’ In this usage ‘literally’ counts as an example of a so-called ‘contronym’, or a word which means both itself and its opposite.

⁵⁹ For some discussions of allegory in an ancient Greek context, see Obbink 2010 and Domaradzki 2015 (also for references to further literature). Domaradzki 2015: 47 helpfully distinguishes between ‘allegory’ in the sense of allegorical composition or narration and ‘*allegoresis*’ in the sense of allegorical interpretation or analysis.

interpretations, even though it does rule out the notion that any of its contents are meant to be understood metaphorically.

4 The early Platonists' reaction to the *Timaeus*

1. The aetiology of the origin-story controversy

As we noted in the previous chapter, the *Timaeus*' central origin-story on the cosmos has been the object of long-standing debate. This debate has its ultimate roots in the reaction to the *Timaeus* of a group of Plato's students and associates within the Platonic Academy. Whereas the previous chapter sought to defend the 'literalism' of the origin-story, focussing exclusively on its textual presentation, this chapter will turn to the views of these Platonists and their relationship to the *Timaeus*. Unfortunately, due to the accidents of philosophical history, we do not possess the writings and ideas of Plato's early followers in anywhere near the same way that we possess a large part of the writings and ideas of Plato and Aristotle. Consequently, in re-constructing the history of early Platonism, we are dependent on a large number of disparate sources, of whom the single most valuable witness is arguably Aristotle.¹ However, although Aristotle also started out at the Platonic Academy and was presumably on familiar terms with many of its leading figures, he came to distance himself from many of their distinctive views and frequently criticised them – usually anonymously – in his writings. Therefore, Aristotle's perspective also needs to be treated with caution and be complemented, so far as is possible, with other available evidence of the Platonists' views.

The early Platonists are traditionally described as 'non-literal' or 'metaphorical' interpreters of the *Timaeus*. However, due to the flexibility with which this terminology has been used in modern scholarly debate, this designation has led them to be ascribed a variety of different interpretive positions. It will be helpful to outline these various positions at the outset, before we turn to examine the ancient textual evidence. Some commentators have argued that the early Platonists, of whom the two most significant are Speusippus and Xenocrates, interpreted certain features of *Timaeus*' account in ways which, as it were, de-

¹ Cherniss 1944 remains foundational for centering the Platonists' views on the Aristotelian evidence. On early Platonism, see the references listed in the Introduction, n. 9.

constructed the infrastructure of the account of generation as a whole. So, for example, many ‘non-literal’ interpreters of the origin-story have appealed to the Platonists in support of their own ‘de-literalising’ manoeuvres.² Sarah Broadie, who is a renowned ‘literal’ interpreter, has also developed a compelling story according to which the early Platonists conflated God *qua* the demiurge and the Forms in their support of an eternally existent cosmos which is dependent on an eternal intelligible cause.³ On this view, the early Platonists are describable as ‘non-literal’ readers of the *Timaeus* insofar as they deny that the *Timaeus* sincerely presents a story of generation in the sense of coming-into-being (*genesis*), which is a hallmark commitment of the ‘literal’ position.

Other commentators assume that the Platonists accepted the *Timaeus*’ origin-story as ‘literal’ in this sense, but that they distinguished between the words of Timaeus’ speech and the views of Plato as the author of that speech himself. Specifically, they hold that, whereas the *Timaeus* recounts a tale of cosmic genesis, Plato’s own view was that the cosmos has not been subject to generation in any way. The signature phrase which is used to report their position is ‘for the sake of instruction’ (*didaskalias charin*), which, as we shall see in a moment, appears in Aristotle’s report of the defensive view that the Platonists held in connection with the *Timaeus*. This phrase suggests that the *Timaeus*’ account was composed for (solely or principally) didactic ends. Hence, these commentators assume that the key didactic objective of the *Timaeus* was to explain the nature and structure of the cosmos, and that the method adopted for this objective was the narration of an origin-story, i.e. an account of coming-into-being. They also claim support for this view from the comparison that the Platonists drew between the *Timaeus*’ account of generation and the construction of geometrical diagrams⁴, which is also mentioned in Aristotle’s account of the Platonists’ position. Accordingly, just as one inscribes a geometrical figure without ever thinking the geometrical entity itself is subject to generation, so the *Timaeus* describes an act of cosmic construction, without however being committed to the view that the cosmos is generated in fact. I will come back to this

² For appeal to the early Platonists by ‘non-literal’ interpreters of the origin-story, see Taylor 1928: 66-69, Cornford 1937: 24-27, at 26, Cherniss 1944: 421-423, Tarán 1971: 388-390, Baltes 1976: 18-22, 1996: 81-82, Dillon 1997: 30-32, and Fronterotta 2010: 153-155.

³ See Broadie 2007. Broadie also considers her defence of the origin-story’s ‘literalism’ in opposition to Xenocrates’ interpretation of the *Timaeus*; see 2012: 243-244, 246, 255, 263-264, and 272-273.

⁴ On the scope of the Greek term *diagrammata* (‘diagrams’), see n. 10 below.

understanding of the Platonists' comparison with geometrical diagrams in the main discussion.

In this chapter I argue that *both* of these interpretations of the early Platonists' reaction to the *Timaeus* are mistaken and that their actual position is readily intelligible to a 'literal'-minded reader of the dialogue. Further, I contend that the early Platonists can be naturally regarded as 'literal' readers of the *Timaeus*, not 'non-literal' or 'metaphorical' readers as they are standardly described, once we understand the connection between their comparison of the *Timaeus'* origin-story and geometrical constructions and the *Timaeus'* account itself. The main discussion will be divided into four main sections, which progressively work through the surviving evidence of the Platonists' view. Firstly, I will examine Aristotle's report of the Platonists' view, which comes from the first book of his *On the Heavens* (*Cael.* 1.10) (§2). Then, I will examine Simplicius' lengthier report of the Platonists' view from his commentary on Aristotle's *On the Heavens* and the other evidence which records their position (§3). After this, I will consider the Platonists' own natural-philosophical views as they are portrayed in Book 3 of Aristotle's *On the Heavens* and the first and final two books of the *Metaphysics* (§4). Lastly, I will examine Aristotle's objection against the Platonists' defence and the question of Plato's own natural-philosophical view (§5).

2. Aristotle's report of the Platonists' view

In Book 1, chapter 10 of *On the Heavens*, Aristotle addresses the question whether or not the cosmos is generated and destroyed. He proposes to discuss first the opinions of other thinkers, on the grounds that his own views, which he presents afterwards (in chapters 11-12), will be more convincing if one has already heard the rival arguments in the dispute (*Cael.* 279b7-12).⁵ Then he asserts that all thinkers say that the cosmos came into being, but that (i) some say that it is eternal, (ii) others say that it is destroyed in the manner of any other naturally composite thing, and (iii) still others say that it is destroyed periodically but that this

⁵ Compare Aristotle, *Top.* 1.11, 104b8 and 1.14, 105a24, in which the question whether the cosmos is eternal (*aidios*) or not is given as an example of a commonplace problem in natural philosophy. For discussion of Aristotle's arguments in chs. 11-12, see Broadie 2009.

process continues eternally, naming as adherents of this view Empedocles and Heraclitus (*Cael.* 279b13-17). The rest of the chapter is aimed at refuting each of these views in turn. First, Aristotle attacks the view that the cosmos came into being but is eternal by classifying this among the scenarios which are impossible (*adunaton*). To begin with, he says that one only ought to posit those things which exist in most or all cases, but on this issue the opposite is true, since all things which come into being are also evidently destroyed (*Cael.* 279b18-21). Then, he observes generally that, if something which is in a certain way has no beginning (*archê*) but is unable to be otherwise throughout an everlasting past, then that thing will also be unable to undergo change. For something will be responsible (*aition*) for the change, but, if that thing exists beforehand, the thing which is unable to be otherwise *will* be able to be otherwise (*Cael.* 279b22-26). So, if the cosmos was composed from things which were previously otherwise, if they were always in that state and it was impossible for them to be otherwise, it would not have come into being. Conversely, if it *has* come into being, then its constituents must be able to be otherwise and not always to be in this state, in which case they will admit composition and dissolution any number of times (*Cael.* 279b26-32).⁶ But, in this case, the cosmos would admit destruction, since it either was or was able to be in a different state (*Cael.* 279b32-33). Hence, Aristotle's argument is based on showing that the cosmos is unable to be both generated and free from destruction.

Now Aristotle reports a defence which is formulated by some of those who say that the cosmos came into being but is free from destruction (*Cael.* 279b33-280a2 = Speusippus fr. 61a Tarán = Speusippus fr. 94 Isnardi Parente = Xenocrates fr. 54 Heinze = fr. 73 Isnardi Parente):

Ἦν δέ τινες βοήθειαν ἐπιχειροῦσι φέρειν ἑαυτοῖς τῶν λεγόντων ἄφθαρτον μὲν εἶναι γενόμενον δέ, οὐκ ἔστιν ἀληθές· ὁμοίως γάρ φασι τοῖς τὰ διαγράμματα γράφουσι καὶ σφᾶς εἰρηκέναι περὶ τῆς γενέσεως, οὐχ ὡς γενομένου ποτέ, ἀλλὰ διδασκαλίας χάριν ὡς μᾶλλον γνωριζόντων ὥσπερ τὸ διάγραμμα γιγνόμενον θεασαμένους.

⁶ As Guthrie (1939: 96 n. 4) notes, this second argument infers that the cosmos is unable to be generated and un-destroyed by showing that the *elements* of the cosmos are unable to admit change and at the same time be eternal. However, if this argument also has a Platonic target in mind (as the following argument does; see below), it is not clear that, for the Platonists, the same conditions apply. On Plato's modal commitments seen in opposition to Aristotle's, see Chapter 1.4 above.

The help which some of those who say that the cosmos is free from destruction, although it came into being, attempt to provide for themselves is not true. For, they say that they have spoken about its [sc. the cosmos'] generation in the same way as those who draw diagrams, not [thinking] that [the cosmos] came into being at some time, but, for the sake of instruction, [thinking] that [people?] know [it, sc. the cosmos?] better, just like those who observe the diagram coming into being.

The individuals who are the subject of this report constitute a sub-group of those thinkers who maintain that the cosmos came into being but is eternal, i.e. the first of the three views which were distinguished earlier. After this brief summary of their position, Aristotle records his objection against them, which is based on the disanalogous role that is played by time in the cosmos' generation and in geometrical constructions (*Cael.* 280a2-10). I will consider the force of this objection later, after we have established how the reported defence was intended to work.

Ancient commentators on Aristotle's text already noted that the un-named individuals who are marked by the *tines* in his report referred to a group of contemporary Platonists, and in particular Xenocrates of Chalcedon, the head of the Platonic Academy after the death of Speusippus.⁷ At the same time, the use of the plural throughout suggests that Aristotle is targeting a broadly held Academic position, and we should not rule out that there may have been differences between individual thinkers in the precise way that the defence should be understood. These Platonists are said to be trying to provide *help* (*boêtheia*) for themselves in connection with their view on the cosmos' generation and destruction. This indicates that the reported argument has a principally defensive or apologetic motive, which is meant to come to their rescue or assistance in some way. The defensive view is based on the fact that, according to these thinkers, 'they (*sphas*) have spoken about its [sc. the cosmos'] generation

⁷ See Xenocrates fr. 54 Heinze = frs. 74-77 Isnardi Parente. Speusippus' name also appears in one of three anonymous scholia on Aristotle's report (fr. 61b Tarán = fr. 95 Isnardi Parente = Xenocrates fr. 54 Heinze = fr. 76 Isnardi Parente), while Plutarch's report refers to both Xenocrates and Crantor (of Soli) and their respective followers (Xenocrates fr. 54 Heinze = fr. 78 Isnardi Parente = Crantor fr. 10 Mette). All of these reports will be quoted and discussed in §3 below. Among modern scholars, the only commentator who has questioned the attribution of this defence to the early Platonists is Aryeh Finkelberg, who, in an overlooked paper (Finkelberg 1996, at pp. 398-400), argues that Aristotle's report should be understood to be targeted against *Plato* as the author of the *Timaeus* itself, whereas the attribution by the commentators is a later confusion. On Plato's relationship to the early Platonists' view, see §5.

similarly to those who draw diagrams'. In this sentence, the reference of the accusative pronoun *sphas* is unclear.⁸ For, if the individuals who are denoted by the pronoun *sphas* were identical to the individuals who are denoted by the nominative *tines*, which is the assumed subject of the main verb *phasin*, we might expect to find a nominative + infinitive construction, as opposed to the accusative + infinitive construction which is in Aristotle's Greek. This suggests that those who are meant by *sphas* are not identical to those who are meant by *tines*, although they may well be included by them. Now, ancient and modern commentators agree that the Platonists' defensive argument is centred upon Plato's account of the cosmos' generation in the *Timaeus*. They thus assume that the reference to speaking about the cosmos' generation alludes directly to the *Timaeus*. This assumption helps us to establish a natural reference for the *sphas*. Specifically, it suggests that the *sphas* denotes Plato along with the Platonists, while the Platonists are regarding the *Timaeus*' account as representative of their own position.⁹ Thus, even though their defence is a self-defence (cf. *heautois*), the Platonists lay claim to be speaking for Plato.

The Platonists say that the *Timaeus*' talk of generation parallels the activity of 'those who draw diagrams'. As several commentators have noted, this reference alludes to the practice of inscribing visual figures, as well as formulating propositions, which was commonplace in the study of geometry and related mathematical sciences.¹⁰ Thus, the Platonists are portrayed as seeing some kind of analogy between the *Timaeus*' account of generation, on the one hand, and the inscription of geometrical figures, on the other hand. The remainder of the report describes how this diagrammatic analogy was supposed to be

⁸ I owe thanks to Sarah Broadie and Luuk Huitink for helping me to think through the linguistic and philosophical considerations in the remainder of this paragraph.

⁹ The use of the plural *sphas* inclines me to doubt that Plato alone is the reference.

¹⁰ Theokritos Kouremenos, in a paper devoted to the topic (Kouremenos 2005), has argued that the words *tois ta diagrammata graphousi* should not be understood as 'those who draw diagrams' or 'those who produce geometrical constructions' but as 'those who prove geometrical propositions' or 'those who carry out geometrical proofs', on the basis that 'the term διάγραμμα... is never used in Greek mathematics for a construction or for a diagram' (2005: 51). However, as Reviel Netz has especially stressed (see 1998 and 1999: 35-43, cf. Niebel 1959: 52-53, Knorr 1986: 69-75, Fowler 1999: 33), the point seems not so much to be that *diagrammata* cannot refer to diagrams (in the modern sense of graphic representations) as that the same word denotes both the visual depiction and the proposition within a geometrical demonstration. As he writes (1998: 38), '[t]his is a notorious fact about Greek practice: it is generally difficult to tell whether the authors speak about drawing a figure or about proving an assertion, and this is because the same word [sc. *diagramma*] is used for both. And this again is because *the diagram is the proof, it is the essence of the proof for the Greek, the metonym of the proof*' (my italics). On diagrams in geometry and astronomy, see further Chapter 6.

understood. Firstly, Aristotle notes that, according to the Platonists, the *Timaeus*' talk of generation parallels geometrical construction insofar as it was *not* intended to convey that '[the cosmos] came into being at some time' (cf. *oux hôs genomenou pote*).¹¹ This suggests that, in the Platonists' view, the comparison with geometrical diagrams was made in order to deny the cosmos' *temporal* generation in some way (interpreting the *pote* with temporal force).¹² Still, the exact kind of temporal generation which is denied may seem rather vague on the evidence of Aristotle's report alone; we can come back to this aspect once we have examined all of the available evidence.

Secondly, they say that the *Timaeus*' talk of generation was given 'for the sake of instruction, [thinking] that [people?] know [it, sc. the cosmos?] better, just like those who observe the diagram coming into being'. Here, it is worth acknowledging that the syntax of Aristotle's Greek is especially compressed, so we should apply special caution in drawing any major inferences from it. The words *didaskalias charin* ('for the sake of instruction') show that the Platonists ascribed some kind of *didactic* motive to the *Timaeus*' account of generation. This didactic motive pertains to the aim of knowing or understanding the cosmos' nature more clearly (*hôs mallon gnôrizontôn*).¹³ On the basis of the parallel with the observers of geometrical diagrams which follows it, I take the subject of the participle *gnôrizontôn* to be general, i.e. anyone who is making sense of the *Timaeus*' origin-story (as is marked by '[people]' in my translation). We can also understand 'the cosmos' as the implied object of the verb (supplying '[sc. *ton kosmon*]' from the implied '[sc. *tou kosmou*] *genomenou*' earlier). Lastly, the Platonists note that the diagram analogy was supposed to make the cosmos better understood in a parallel way to those who observe the generation of diagrams (*hôsper to diagramma gignomenon theasamenous*). Here, the choice of the *accusative theasamenous* seems to be dictated by the governing analogy with the accusative pronoun *sphas*, which is the subject of the entire indirect statement introduced by *phasin*. The implied subject of the

¹¹ The noun which goes with the participle *genomenou* is presumably *tou kosmou*. On *hôs* + genitive absolute used to mark a subjective reason or mental attitude, see Smyth §2120 and CGCG §52.39.

¹² That the *pote* should be understood temporally is confirmed by Simplicius' report of the Platonists' view, which notes that 'these [individuals, sc. Xenocrates and the Platonists]... say that one ought to understand its [sc. the cosmos'] generation *not as from time* (*oux hôs apo chronou*)' (*Comm. De Caelo* 304.3-4 = Xenocrates fr. 74). See further §3 and §5 below.

¹³ On *gnôrizein* meaning both 'to make known', i.e. 'point out', and 'to gain knowledge of', i.e. 'become acquainted with', see LSJ I and II.

participle can also be construed as the practitioners of geometry, i.e. the same individuals as are meant by 'those who draw diagrams' earlier. Thus, the Platonists' point is that the *Timaeus*' talk of generation was designed to make the cosmos more intelligible in the same way that geometers look on their diagrams in an act of generation.

What was the overall objective of this comparison between the *Timaeus*' origin-story and geometrical construction? As I have already noted in the beginning of this chapter, modern commentators have ascribed to the Platonists differing interpretations of the *Timaeus*' account. In particular, whereas some have argued that the Platonists re-interpreted different constituents of the generational narrative, such as the demiurge and the intelligible paradigm, to make it seem that the *Timaeus* does not really convey a generational act, others have supposed that, in their view, the origin-story narration was composed for merely presentational purposes, whereas Plato's actual opinion was that the cosmos is not generated in any way. Here are two quotations which illustrate each of these positions:

Now Xenocrates, the second head of the Academy after Plato's death, a contemporary of Aristotle, expressly explained that Plato does not mean to teach that there ever was a 'first moment'. When he speaks of time and the οὐρανός as 'beginning', he does so διδασκαλίας χάριν, 'as a help to the exposition', just as geometers are perpetually talking of 'joining the points *A* and *B*', 'describing a square on the base *EF*', and so forth, though they know all the time that we can neither make nor unmake a true geometrical line or figure. Our talk of 'drawing' the line or 'describing' the square is only a convenient way of calling a pupil's (or reader's) attention to the fact that, in virtue of our initial postulates, the line or square is already there. (Taylor 1928: 67)

Mit anderen Worten, die Darstellung der Weltentstehung im "Timaios" ist durch *didaktische* Absichten bestimmt; so, wie sie ist, ist sie διδασκαλίας χάριν bzw. σαφηνείας ἔνεκα. Das haben schon Speusipp und Xenokrates gesehen. Doch sind diese noch einen Schritt weitergegangen. Sie haben behauptet, nicht nur die *Darstellung* der Weltentstehung, sondern auch der *dargestellte Akt* sei nichts weiter als sein Zugeständnis an die διδασκαλία. Wie in der Geometrie zum Zweck der Unterweisung und der Verdeutlichung ein Dreieck aus vorgegebenen Größen *konstruiert* werde, das doch *niemals* entstanden sei, so lasse Platon im "Timaios" den Kosmos nur zum Zweck der Unterweisung und um der größeren Deutlichkeit willen durch den Demiurgen *konstruiert werden*. In Wirklichkeit sei der Kosmos ebensowenig entstanden wie die geometrische Figur. (Baltes 1996: 81-82, original italics)

These two views broadly correspond to the first and second interpretations of the Platonists' view on the *Timaeus* as I have summarised them above. For Taylor, the *Timaeus'* account of cosmic generation – and, in particular, the generation of time and the cosmos together (*Tim.* 38b) – does not imply that, in Plato's view, there *was* a period of time in the cosmos' history *before* the cosmos came into being, and thus that there was ever a 'first moment' in which the cosmos came into being.¹⁴ Rather, Taylor holds that the *Timaeus'* talk of time and the cosmos' generation is *merely* presentational in a parallel way to geometrical construction, presuming this to be the same as the view which was held by Xenocrates. Conversely, for Baltes Xenocrates and Speusippus argued that the didactic agenda of the *Timaeus'* account pertained not only to the representation of the cosmos' generation ('die Darstellung der Weltentstehung') but also the represented act ('die dargestellte Akt'). On this view, Xenocrates and Speusippus re-interpreted those features of the origin-story which presumed the cosmos' generation through a sequence of connected acts. For instance, Baltes holds that the *demiurge* was posited by Plato as a supportive device for distinguishing intelligent from necessary causation in the cosmos, and that it can ultimately be identified with the intelligible paradigm.¹⁵ Similarly, the language of *gegonen* at 28b7 and the accompanying talk of generation from a starting-point (*archê*) can be understood to endorse no more than the cosmos' metaphysical dependency on an intelligible cause, in opposition to its construction over a number of successive phases.¹⁶ Baltes thus envisions Xenocrates and Speusippus as recasting the *Timaeus'* cosmogony as what one might call a 'pseudo-cosmogony' or a 'crypto-cosmogony', while also insisting that these 'de-literalising' manoeuvres were encouraged, by being planted into the *Timaeus'* narrative, by Plato himself.

However, I want to argue that both of these interpretations conflict with evidence from Aristotle's text. Then, in the remainder of the chapter, I will go on to develop my own

¹⁴ See further Taylor 1928: 66-69. On the fact that the cosmos has existed throughout *all* time (that is, from the past as well as into the future), see *Tim.* 38b-c (quoted in Chapter 3.2.2. above). See also §5 below.

¹⁵ See 1996: 87-91. On the separateness of God *qua* the demiurge from the paradigm, however, see Chapter 3.2.3 above.

¹⁶ See 1996: 91-94. On the compatibility of a 'metaphysical' reading of *gegonen* at *Tim.* 28b7 with a 'literal' interpretation of the origin-story, see Chapter 3.4, n. 56 above. Crantor, the younger contemporary of Xenocrates, is reported to have understood *Tim.* 28b7 that the cosmos is 'brought into being from another cause and is not self-generated or self-subsisting' (fr. 9 Mette).

account of the way that the Platonists' defence was supposed to be understood. Firstly, Aristotle's report does not give any indication that the early Platonists doubted the fact that the *Timaeus*' account portrays a generational event, i.e. a story of coming into being. Consequently, the Platonists do not count as 'non-literal' readers of the origin-story according to the first kind of 'non-literalism' which was outlined above (and which was exemplified by Baltes' interpretation). Aristotle says that, in the Platonists' defence, the *Timaeus*' talk of generation stands in an analogy to the construction of geometrical figures by practitioners of geometry. In order for this analogy to work, one has to grant that there is sincerely *talk* of generation, just as the geometer does in fact inscribe a geometrical figure (or conduct a series of geometrical propositions) in his or her investigation. It is not the case that the geometer only feigns to inscribe the geometrical figure (or propositional series) but that no action of inscription (or demonstration) is carried out at all. Thus, it rides roughshod over the Platonists' geometrical comparison to maintain that, in their eyes, the *Timaeus*' origin-story does not properly portray a generational act in the manner of a step-by-step constructive procedure at all. The geometrical comparison assumes that, in the *Timaeus*, the cosmos is presented as generated, and that the kind of generation in question is constructive (as opposed to mere metaphysical dependency).

Secondly, 'non-literal' and 'literal' interpreters alike assume that the Platonists' *own* belief was that the cosmos is not subject to generation in the sense of coming into being in any way. They also take it that, since these Platonists are speaking in defence of Plato's intentions in the *Timaeus*, Plato too, in the eyes of the Platonists, did not endorse the cosmos' generation in fact. However, let us look a little more closely again at Aristotle's presentation of the Platonists' position. Firstly, Aristotle introduces the Platonists as a sub-group of those who say that the cosmos is free from destruction, although it came into being (*aphtharton men einai genomenon de*). Since commentators traditionally assume that the Platonists *denied* that the cosmos came into being, it seems as though they are bound to interpret this reference as a reflection of what the Platonists say *is said in the Timaeus* (which is thereby the target of the saying verb *legontôn*). However, a more natural construal is to suppose that Aristotle is here introducing (what he takes to be) the Platonists' *own* view on the cosmos'

generation, which they are maintaining by reference to the *Timaeus*.¹⁷ Earlier, Aristotle has stated that *all* thinkers (*pantes*) say that the cosmos came into being; what they disagree on is the question of its destruction (*Cael.* 279b12-13). Thus, if the Platonists in fact do *not* maintain that the cosmos has come into being (in any way), Aristotle would be guilty of seriously mischaracterising their position. Although this is not a possibility which can be dismissed easily, the alternative reading which I have proposed seems at any rate more charitable. Furthermore, within his later objection to the Platonists' view, Aristotle refers to their viewpoint again (*Cael.* 280a7):

ἐξ ἀτάκτων γὰρ ποτε τεταγμένα γενέσθαι φασίν...

For, they say that, from un-arranged things, things which are arranged at some time came into being...

Some 'non-literal' interpreters have accused Aristotle of begging the question in this characterisation of the Platonists' position.¹⁸ However, there is good reason to think that Aristotle is not misrepresenting the Platonists at this point, because the language which he uses to record their view evokes – being seemingly borrowed from – the language of the *Timaeus* itself. Specifically, the Platonists appear to be paraphrasing Timaeus' summary of God's constructive act, in which he says that God, having taken control of a set of raw materials, 'guided it to [a state of] arrangement from its lack of arrangement' (*eis taxin auto êgagen ek tês ataxias*, *Tim.* 30a5).¹⁹ Taken at face value, the Platonists thus seem to accept that the cosmos is generated insofar as it has undergone a transition from disorder to order, while at the same time they argue that the *Timaeus* was not intended to endorse the cosmos' temporal generation and its talk of generation is comparable to the construction of diagrams in geometry. We can examine each of these aspects in further detail in the following sections.

¹⁷ I phrase this sentence in such a way as to leave the question open whether or not the Platonists *themselves* endorsed the cosmos' generation or whether Aristotle only characterises them as doing so, but on account of a perceived inadequacy in their argumentation. On this issue, see below.

¹⁸ For references and discussion, see §5 below.

¹⁹ That the Platonists had this passage in mind is confirmed by Simplicius' lengthier report, which includes a quotation of *Tim.* 30a3-5 at the beginning of his exposition of their position. See §3 below.

3. Simplicius' report of the Platonists' view

Usually Aristotle's report in *On the Heavens* is the only passage cited by modern commentators who examine the defensive argument that was developed by the early Platonists in connection with the *Timaeus*. In this section, however, I canvass the other surviving evidence of the Platonists' view, giving special significance to Simplicius' fuller report within his commentary on this section of Aristotle's *On the Heavens*. After quoting Aristotle's report and his objection, Simplicius comments on it as follows (*Comm. De Caelo* 303.34-304.16 Heiberg = Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente):

δοκεῖ μὲν πρὸς Ξενοκράτην μάλιστα καὶ τοὺς Πλατωνικοὺς ὁ λόγος τείνειν, διότι ἐξ ἀτάκτου καὶ πλημμελοῦς γεγονέναι τὸν κόσμον φασί, τοῦ Πλάτωνος εἰπόντος· «παραλαβὼν γὰρ ὁ θεὸς πᾶν ὅσον ἦν ὁρατόν, οὐχ ἡσυχίαν ἄγον ἀλλὰ κινούμενον πλημμελῶς καὶ ἀτάκτως, εἰς τάξιν αὐτὸ ἤγαγεν ἐκ τῆς ἀταξίας». οὗτοι οὖν γενητὸν καὶ ἄφθαρτον λέγοντες τὸν κόσμον τὴν γένεσιν οὐχ ὡς ἀπὸ χρόνου φασὶ δεῖν ἀκούειν, ἀλλ' ἐξ ὑποθέσεως εἰρημένην διδασκαλίας χάριν τῆς τάξεως τῶν ἐν αὐτῷ προτέρων τε καὶ συνθετωτέρων, ἐπειδὴ γὰρ τῶν ἐν τῷ κόσμῳ τὰ μὲν στοιχεῖά ἐστι, τὰ δὲ ἐκ τῶν στοιχείων, οὐκ ἦν ῥάδιον γινῶναι τὴν τούτων διαφοράν, καὶ ὅπως ἐκ τῶν ἀπλουστέρων γίνεται τὰ σύνθετα, τὸν μὴ ἀναλύσαντα τῇ ἐπινοίᾳ τὰ σύνθετα εἰς ἀπλᾶ καὶ σκοποῦντα, πῶς, εἰ τὰ ἀπλᾶ καθ' αὐτὰ ἦν, ἐξ ἀρχῆς ἀπ' αὐτῶν ἂν ἐγεγόνει τὰ σύνθετα, ὥσπερ ἐπὶ τῶν διαγραμμαμάτων οἱ μαθηματικοὶ τὴν φύσιν αὐτῶν ζητοῦντες τὰ σύνθετα εἰς τὰ ἀπλᾶ ἀναλύουσι, καὶ ὅπως ἐξ ἐκείνων ἐγένετο ἂν, εἴπερ ἐξ ἀρχῆς ἐγένετο, σκοποῦσιν, οἷον ὅτι τὸ τρίγωνον ἐκ τριῶν εὐθειῶν κατὰ γωνίας συντιθεμένων, ὁ δὲ κύβος ἐκ τετραγώνων ἕξ κατὰ γωνίας καὶ γραμμὰς ἀλλ' οὐχὶ κατὰ τὰ ἐπίπεδα συντιθεμένων.

The argument seems to be directed against Xenocrates in particular and the other Platonists, because they say that the cosmos has come into being from [an] un-arranged and un-harmonious [state]. As Plato said: «For God, having taken control of all that was visible, not in a state of rest but moving in an un-harmonious and un-arranged way, guided it to [a state of] arrangement from its lack of arrangement». These [individuals], in stating that the cosmos is generated and free from destruction, say that one is supposed to understand its generation not as from time, but [as] spoken from [a] hypothesis for the sake of instruction concerning the arrangement of the prior and more compounded things in it. For, since some of the things in the

cosmos are elements, whereas others are from the elements, it wouldn't be easy to know the difference between these things, or [to know] how the composites come into being from the more simple [things], unless one analyses in one's mind the compounds into simples and inspects how, if the simples were by themselves, the composites would have come into being out of them from [a] starting-point, just as through diagrams mathematicians analyse composites into simples in seeking their [sc. the composites'] nature, and inspect how the latter would come into being from the former, if they came into being from [a] starting-point. For example, [they inspect] that the triangle [comes into being] from three straight [lines] composed at [certain] angles and that the cube [comes into being] from six squares composed at [certain] angles and lines, but not plane surfaces.²⁰

Simplicius' report agrees with the briefer and more convoluted account of the Platonists' view in Aristotle as I have interpreted it in the previous section. For example, like Aristotle, Simplicius says that, in the Platonists' view, the cosmos is generated (*genêtos*) and undestroyed and cites them as saying that the cosmos has come into being from a disorderly and un-harmonious state. This is followed up by a quotation²¹ of *Timaeus* 30a3-5, in which Timaeus describes God's constructive action as guiding the entirety of visible materials from a state without arrangement to one of arrangement. Further, Simplicius' report confirms that the kind of generation which the *Timaeus* was not supposed to endorse is 'temporal' in character, meaning that the cosmos was generated 'from time' (*apo chronou*).²² The sense of this expression presumably corresponds to the temporal adverb *pote* which appeared in Aristotle's report. Lastly, Simplicius expands considerably on the Platonists' comparison with geometrical diagrams and its didactic motivation. Specifically, he notes that the didactic aspect of the *Timaeus*' account pertained to the arrangement of prior and more compounded things within the cosmos. Then, he explains how the analysis of the simple and composite entities within the cosmos parallels mathematicians' analysis of composite figures into their elementary parts, giving the example of the triangle's analysis into three straight lines and angles and the cube's analysis into six squares.

²⁰ The translation is my own but is based on Hankinson 2006.

²¹ With one textual discrepancy: whereas the transmitted text reads πᾶν ὅσον ἦν ὁρατὸν παραλαβὼν (*Tim.* 30a3-4), Simplicius' quotation reads παραλαβὼν γὰρ ὁ θεὸς πᾶν ὅσον ἦν ὁρατόν. *Ho theos* appears in the *Timaeus* in the preceding line.

²² For a distinction between generation *from* time, meaning at a particular moment in time, and generation *in* time, meaning across a number of sequential (and so 'temporal') phases, see §5 below.

Traditionally, commentators take the didactic force of the Platonists' comparison with geometrical construction to be directed at the hierarchy of causal relations which exists within the cosmos. On this interpretation, Simplicius' differentiation between the elements (*ta men stoicheia*) and the things which derive from the elements (*ta de ek tôn stoicheiôn*) corresponds to the *Timaeus*' opposition between primary (intelligent) and secondary (necessary) levels of causality. For instance, Aryeh Finkelberg, in a little-cited paper on the subject, has explicated Simplicius' report of the Platonists' view in the following way (1996: 401-403, at 402):

Chaos and Reason are thus "simple things" into which Plato conceptually analyses the complex whole of the world to consider how, if Chaos and Reason were "just by themselves", the world would have come into being out of these from the first; on the application of this procedure the world becomes more comprehensible after its elements have been examined just by themselves and properly differentiated.

Finkelberg's reference to 'Chaos' and 'Reason' alludes to what the *Timaeus* calls 'intelligence' (*noûs*) and 'necessity' (*anagkê*), which constitute the two major causal factors from which, having been mixed together, our cosmos has come into being (cf. *Tim.* 47e-48a).²³ Accordingly, the basic division of *Timaeus*' narrative into the works of intelligence and the works of necessity corresponds to the geometrical operation of reducing a composite figure, such as a triangle or a cube, into its basic or elementary parts.

However, against this traditional understanding of the geometrical comparison, I argue that the early Platonists had a different and more specific section of the *Timaeus* in mind, namely its account of the generation of the primary bodies (*Tim.* 48b-c, 53b-56c). This should make intuitive sense in light of the fact that, as I have already discussed in the previous chapter, the *Timaeus*' account of the primary bodies' generation is distinguished by its geometrical character.²⁴ In order to demonstrate the connection between the Platonists' defence and this part of the *Timaeus*, I will divide Simplicius' report of their view into two

²³ For a similar understanding of the Simplician evidence, see Cherniss 1944: 421-422 and Baltes 1976: 21.

²⁴ On the 'analytical' mode of narration which distinguishes *Timaeus*' account of the primary bodies' generation, see Chapter 3.2.3 above.

sections, namely (i) their claim that it is *difficult* to know the difference between the elementary and composite units in the cosmos, and (ii) their claim that it is difficult to know *how* the composite units come into being from the simples, unless one analyses the composites into simples and imagines that the composites come into being from a starting-point. Let us look at each of these two aspects in conjunction with the *Timaeus* in turn.

Firstly, the Platonists' distinction between the elementary and composite units in the cosmos, as well as the claim that it is difficult to differentiate between them, recalls the *Timaeus*' discussion of the 'elements' (*stoicheia*) in the cosmos, as opposed to the things which are mistakenly thought to be the elements. Near the beginning of his account of necessity, after Timaeus has stated as a prescribed aim of his account the observation of the nature of fire, water, air and earth and their behaviours *before* the cosmos' generation, he makes the following comment about them (*Tim.* 48b5-c2):

νῦν γὰρ οὐδεὶς πω γένεσιν αὐτῶν μεμήνηκεν, ἀλλ' ὡς εἰδόσιν πῦρ ὅτι ποτέ ἐστιν καὶ ἕκαστον αὐτῶν λέγομεν ἀρχὰς αὐτὰ τιθέμενοι στοιχεῖα τοῦ παντός, προσῆκον αὐτοῖς οὐδ' ἂν ὡς ἐν συλλαβῆς εἶδεσιν μόνον εἰκότως ὑπὸ τοῦ καὶ βραχὺ φρονοῦντος ἀπεικασθῆναι.

For, at the present time, nobody has yet revealed their generation. But, [thinking] that [we] know what fire and each one of them actually is, we say that they are starting-points, positing them as 'elements' of the universe, even though it wouldn't even be appropriate for them to be likened to the forms of [a] syllable, [if] only in a likely way by someone of slight sense.

It is wrong to regard the primary bodies of fire, earth, air and water as 'elements' of the cosmos.²⁵ However, he says that we make this mistake when we posit them as 'starting-points', which we do on the presumption that we already know what each one of them is.²⁶

²⁵ The contention that *no-one* has correctly explained their generation contrasts with the view that a majority of natural philosophers (*tôn pleistôn*, *Tim.* 46d1; cf. *hoi polloi*, *Phd.* 99b4-5) mistakenly posits the primary bodies as 'responsible', instead of 'co-responsible', for the natural processes which go on within the cosmos (*Tim.* 46c-e).

²⁶ This suggests that the primary bodies are regarded as 'elements' because they are posited as cosmic 'starting-points', rather than the other way around. For comparison of this passage with the mathematicians' use of hypotheses in the *Republic* (510c-d), see Chapter 6.6.

Then, Timaeus plays on another sense of *stoicheion* as a ‘letter’ of the alphabet by observing that, according to likely reasoning, it isn’t even correct to compare the primary bodies to ‘the forms of [a] syllable’. Since a syllable is described in other Platonic dialogues as a combination of letters which produces a single sound, Timaeus seems to imply that the primary bodies do not even resemble *simple* combinations of elements when it comes to their actual formal structure.²⁷ Rather, the primary bodies occupy a distance of *two* degrees from whatever are the true ‘elements’ of the cosmos, of which this passage makes no explicit mention. All we know so far is that the primary bodies are not the ultimate building-blocks, contrary to a widespread natural-philosophical view. Further, it will be necessary to determine the identity of the true ‘elements’ in order to reveal the generation of the primary bodies. The distinction between the (as yet unknown) elements and the primary bodies in the *Timaeus* matches precisely with the Platonists’ contrast between the elementary and composite parts of the cosmos, as well as the implied importance of recognising the difference between them.

Secondly, the Platonists’ claim that it is difficult to know how the composites come into being from the simples, unless one analyses the composites into simples and imagines that they have come into being from a starting-point, seems to parallel the *Timaeus*’ analytical investigation into the primary bodies’ generation. As we noted in the previous chapter, Timaeus prefaces this phase of his origin-story by acknowledging that his account will be unusual, but that his interlocutors, thanks to their erudition in ‘the ways through which it’s necessary for what is said to be indicated’, will be able to follow along (*Tim.* 53b7-c3). This suggests that the subsequent narration will presume a certain level of (mathematical) expertise.²⁸ Then, he begins by making the general observation, which is presented as self-evident, that fire, earth, air and water are all bodies (*sômata*). Being bodies, they formally possess depth, depth is an attribute which is defined by bounded surfaces, and all straight-edged surfaces are composed out of triangles (*Tim.* 53c4-8).²⁹ Next, Timaeus asserts that all

²⁷ On the semantic scope of the term *stoicheion*, see Crowley 2005, with discussion of this passage in pp. 378-384. On the syllable as a complex of letters, see Ryle 1960. Timaeus’ analogy rather suggests that the primary bodies correspond to *words*, i.e. combinations of syllables.

²⁸ Commentators today agree that the *Timaeus*’ account of the primary bodies’ generation (and, in particular, its mention of what we call today the ‘five Platonic solids’) is indebted to the developments in solid geometry which were made by the mathematician Theaetetus (of Athens, after whom the Platonic dialogue is named). See Sachs 1917, Waterhouse 1972, and Lassarre 1987: 47-66, as well as Chapter 6, nn. 7 and 25 below.

²⁹ On the geometrical nature of body according to Plato, as well as its opposition to Aristotelian views, see Johansen 2016a.

triangles take as their starting-point two kinds of triangle, namely the right-angled isosceles and the right-angled scalene (*Tim.* 53c-d). After this, he makes the following key declaration (*Tim.* 53d4-6):

ταύτην δὴ πυρὸς ἀρχὴν καὶ τῶν ἄλλων σωμάτων ὑποτιθέμεθα κατὰ τὸν μετ' ἀνάγκης εἰκότα λόγον πορευόμενοι...

Let's hypothesise *this* as the starting-point of fire and the other bodies, proceeding on the basis of likely reasoning together with necessity.

This passage shows that the actual starting-point for the generation of the primary bodies are the two kinds of right-angled triangle, to which all other kinds of triangle owe their origination. Further, it affirms that the declaration of these triangles as the starting-point has been reached by means of a hypothesis (cf. *hupotithemetha*). Crucially, this aspect corresponds exactly to the Platonists' claim in Simplicius' report that the cosmos' generation in the *Timaeus* was 'spoken of from [a] hypothesis (*ex hypotheseôs eirêmenên*) for the sake of instruction concerning the arrangement of the prior and more compounded things in it'.³⁰ Then Timaeus proceeds to investigate the identity of the four most beautiful bodies which are unlike one another but which are capable of transforming in and out of one another (*Tim.* 53d-e). To begin, he again posits (*tithemetha*, 54a5-6) the half-equilateral triangle to be the most beautiful kind of scalene triangle, and says that, together with the right-angled isosceles, these are the two most beautiful triangles which his account will admit (*Tim.* 54a-b).³¹ Then, after having corrected himself that one of the four bodily forms does not admit intertransformation (because it is composed solely of half-equilateral triangles), he describes the geometrical structure of each of the four bodily forms which are composed from these two triangles (*Tim.* 54b-d). These four forms are, in their order of presentation, the

³⁰ The reference to speaking from a hypothesis recalls the use of the same language in the second geometrical passage of the *Meno* (86e-87b) as well as the talk of hypotheses in the *Phaedo* (101c-d) and the *Republic*. For discussion, see Chapter 6.

³¹ On the choice of these triangles, see Paparazzo 2015, as well as the bibliography listed in Chapter 3, n. 51 above. Timaeus allows that the choice of another kind of scalene triangle, after cross-examination, will be greeted in a friendly, not a hostile, manner (*Tim.* 54a), presumably because the kinds of scalene triangles are unlimited (*aperantous*, 54a2).

tetrahedron (or pyramid), the octahedron, the icosahedron and the cube (*Tim.* 54d-55c). Significantly, during the course of this account Timaeus refers to the half-equilateral triangles which compose the first three of the four bodily forms as the ‘elements’ (*stoicheia*) of each of these forms (see at *Tim.* 54d6, 55a8, and b4, cf. 57c9, 61a7). Also, in assigning the four bodily forms to each of the four primary bodies, Timaeus describes the solid form of the pyramid as the ‘element and seed of fire’ (*puros stoicheion kai sperma*, *Tim.* 56b5). This suggests that the real ‘elements’ of the universe are the two kinds of right-angled triangle, while each of the four bodily forms can also be regarded as the ‘element’, as well as the ‘seed’, of each primary body. Most importantly for the present purposes, it indicates that the Platonists’ distinction between the elements, which are ‘prior’, and the things which come into being from the elements, which are ‘more compounded’, alludes specifically to the *Timaeus*’ distinction between the elementary triangles and the primary bodies of fire, earth, air and water. The *Timaeus*’ narration of the primary bodies’ generation also explains how the composites come into being from the simples by imagining that the simples are originally by themselves and that the composites come into being out of them from a starting-point.

These connections between the Platonists’ view according to Simplicius’ report and the *Timaeus*’ account of the primary bodies’ generation suggest that, when the Platonists compared the *Timaeus*’ talk of generation to the construction of geometrical diagrams, they were looking particularly to its story of how the four primary bodies are composed from a pair of elementary triangles. In order to confirm that this is likely to be the passage they had in mind, we can look to a few other reports of the Platonists’ view. For example, Plutarch records the viewpoint of the early Academy within his essay on the soul’s generation in the *Timaeus* (*Procr. An.* 1013a-b = Xenocrates fr. 68 Heinze = fr. 78 Isnardi Parente = Crantor fr. 10 Mente):

Ὅμαλῳς δὲ πάντες οὗτοι χρόνῳ μὲν οἴονται τὴν ψυχὴν μὴ γεγονέναι μηδ’ εἶναι γενητὴν πλείονας δὲ δυνάμεις ἔχειν, εἰς ἃς ἀναλύοντα θεωρίας ἔνεκα τὴν οὐσίαν αὐτῆς λόγῳ τὸν Πλάτωνα γιγνομένην ὑποτίθεσθαι καὶ συγκεραννυμένην· τὰ δ’ αὐτὰ καὶ περὶ τοῦ κόσμου διανοούμενον ἐπίστασθαι μὲν αἰδίων ὄντα καὶ ἀγένητον τὸ δὲ ὅ ἅ τρὸς συντέτακται καὶ διοικεῖται καταμαθεῖν οὐ ῥάδιον ὁρῶντα τοῖς μήτε γένεσιν αὐτοῦ μήτε τῶν γενητικῶν σύνοδον ἐξ ἀρχῆς προϋποθεμένοις ταύτην τὴν ὁδὸν τραπέσθαι.

All these [individuals, sc. both Xenocrates, Crantor and their respective followers, cf. 1012d] are unanimous in thinking that the soul has not come into being and is not generated with respect to time. But, since it possesses multiple powers, in order to analyse the essence of it into them for the purposes of study, Plato hypothesises that it comes into being and is blended together in speech. [They think that] he has the same thoughts also concerning the cosmos. He knows it to be eternal and *un-generated*, but he sees that it isn't easy to learn the way in which it has been arranged together and furnished for those who hypothesise in advance neither its generation nor [its] combination of generated [constituents] from [a] starting-point. [Therefore] this was the approach that he adopted.

Plutarch's report contains some interesting differences from the presentation of the Platonists' view in Aristotle and Simplicius, although I do not think that these differences reflect an alternative view. For one thing, unlike those two reports, Plutarch begins by recording the early Platonists' understanding of the generation of the soul, before drawing a parallel with their understanding of the generation of the cosmos. Xenocrates and Crantor both maintain that the soul is not generated in terms of time (*chronôi*). However, they hold that Plato has hypothesised its generation in order to explain the soul's essence (*ousia*) and its various powers (*dunameis*).³² Then Plutarch notes that, in the Platonists' view, Plato thinks in the same way concerning the cosmos. On the one hand, they claim that Plato³³ knows the cosmos to be eternal and un-generated (*aidion onta kai agenêton*). Since the previous claim was that the soul is not subject to generation in terms of *time*, we can assume that the Platonists hold that the cosmos is un-generated in terms of time, so that Plutarch's report can be read consistently with the reports of Aristotle and Simplicius. On the other hand, they assert that Plato sees that it isn't easy to learn about the complex nature of the cosmos 'for those who hypothesise in advance neither its generation nor [its] combination of generated [constituents] from [a] starting-point'. Significantly, this description parallels Simplicius' presentation of the Platonists' view in several details. For instance, there is an acknowledgement of the difficulty of explaining the cosmos' composite nature (*ou raidion* in

³² Xenocrates and Crantor gave different interpretations of the core ingredients of the soul (*Tim.* 35a-36d). See Chapter 5.2. below.

³³ Unlike Aristotle and Simplicius, Plutarch's report explicitly frames the Platonists' defence as a defence of Plato's cosmogonic position.

both texts), a reference to the need to hypothesise its generation (*ex hypothesêôs* in Simplicius, *proupothemenois* in Plutarch), and an allusion to the generated entities of the cosmos coming into being from a starting-point (*ex archês* in both passages). It is also striking that Plutarch describes the constituents within the cosmos as *generated* (*genêtikôn*), a reference which we can now understand as alluding to the primary bodies of fire, earth, water and air on the evidence of Simplicius' report. Hence, Plutarch's account of the Platonists' view coheres with the two accounts provided by Aristotle and Simplicius, as I have interpreted them above.³⁴

³⁴ There are also three surviving scholia-comments on the passage from Aristotle's *On the Heavens* (*Scholia in Ar. De Caelo* 489a, 4-8, 9-12, 25-28 Brandis = Xenocrates fr. 54 Heinze = frs. 75-77 Isnardi Parente; Xenocrates fr. 76 Isnardi Parente = Speusippus fr. 61b Tarán = fr. 95 Isnardi Parente):

ταῦτα πρὸς Ξενοκράτη εἴρηται ἀπολογούμενον ὑπὲρ Πλάτωνος καὶ λέγοντα ὅτι γενόμενον εἶπε τὸν κόσμον ὁ Πλάτων οὐ τοῦτο βουλόμενος, ἀλλὰ διδασκαλίας χάριν ἔφησεν ἐκ τῆς ὕλης τῆς προηγουμένης καὶ τοῦ εἶδους γεγονέναι τὸν κόσμον, ὡς ἔχει ἐπὶ τῶν μαθημάτων. (fr. 75 Isnardi Parente)

These things [sc. in Aristotle's report] were said against Xenocrates, who speaks apologetically on behalf of Plato. He says that Plato said that the cosmos came into being, not meaning this, but, for the sake of instruction, he stated that the cosmos has come into being from pre-existing matter and form, just as is the case in mathematics.

ὁ Ξενοκράτης καὶ ὁ Σπεύσιππος ἐπιχειροῦντες βοηθῆσαι τῷ Πλάτῳ ἔλεγον ὅτι οὐ γενητὸν τὸν κόσμον ὁ Πλάτων ἐδοξάζεν ἀλλὰ ἀγένητον, χάριν δὲ διδασκαλίας καὶ τοῦ γνωρίσαι καὶ παραστήσαι αὐτὸ ἀκριβέστερον ἔλεγε τοῦτον γενητὸν. (fr. 76 Isnardi Parente)

Xenocrates and Speusippus, in attempting to assist Plato, said that Plato believed that the cosmos was not generated but un-generated, but, for the sake of instruction, both to know and present it more accurately, he said that it [sc. the cosmos] was generated.

ἀδύνατον ταῦτα πρὸς τὸν Ξενοκράτην λέγοντα ὑπὲρ τοῦ Πλάτωνος ὅτι λέγων ὁ Πλάτων τὸν κόσμον γενητὸν καὶ ἀφθαρτον, οὐ τοῦτο δηλοῖ, ὅτι οὐχὶ πεφυκῶς ἐστὶ φθαρῆναι, ἀλλ' ὅτι ἐφθάρθαι δυνάμενος συγκρατούμενος παρὰ τοῦ θεοῦ μένει. (fr. 77 Isnardi Parente)

Impossible (?): these things against Xenocrates, who says on behalf of Plato that Plato, in saying that the cosmos was generated and free from destruction, does not show this, namely that it is naturally such as not to be destroyed, but that, although capable of being destroyed, it persists by being under the control of God.

Two further reports which are assigned to Theophrastus, Aristotle's student and successor as head of the Lyceum, also ascribe the geometrical comparison directly to Plato (frs. 241a-b Fortenbaugh et al.): 'Theophrastus, however, in *On the Beliefs of the Natural Philosophers* says that the cosmos is generated according to Plato and makes his objections accordingly, but he insinuates (*paremphinei*) that, perhaps, he [sc. Plato] hypothesises it as generated for the sake of clarity (*saphêneias charin*); and 'Theophrastus said that

4. The Platonists' interest in Timaeian geometry

Simplicius' report of the Platonists' view, supported by other later testimonies as well as the foundational report in Aristotle, indicates that the early Platonists compared the *Timaeus*' account of the primary bodies' generation to a kind of geometrical analysis. What does this comparison tell us about the Platonists' understanding of the cosmos' generation? And what, if anything, about Plato's own point of view? In this section I will relate the Platonists' defence as it has been re-constructed so far to their broader natural-philosophical views, before going on to draw some conclusions about their (and Plato's) cosmogonic commitments. To begin with, we can consider some passages from Book 3 of Aristotle's *On the Heavens*, in which Aristotle discusses the nature of the elements in the cosmos and the views which were held by his predecessors. In the opening chapter of Book 3, Aristotle says that any account of the elements requires a thorough investigation of generation and destruction, since either generation does not exist or there is generation only among the elements and their compounds (*Cael.* 298b9-13). Then he distinguishes between three positions: (i) those who deny generation and destruction altogether (such as Parmenides and Melissus); (ii) those who say that nothing is un-generated but all things come into being (such as Hesiod, the earlier natural philosophers and Heraclitus); and (iii) those 'who make all body generated, composing and dissolving [them] into and out of surfaces' (*Cael.* 299a1-2). Now he makes the following objection against this group (*Cael.* 299a2-11):

Περὶ μὲν οὖν τῶν ἄλλων ἕτερος ἔστω λόγος· τοῖς δὲ τοῦτον τὸν τρόπον λέγουσι καὶ πάντα τὰ σώματα συνιστᾶσιν ἐξ ἐπιπέδων ὅσα μὲν ἄλλα συμβαίνει λέγειν ὑπεναντία τοῖς μαθήμασιν, ἐπιπολῆς ἰδεῖν· καίτοι δίκαιον ἢ μὴ κινεῖν ἢ πιστοτέροις αὐτὰ λόγοις κινεῖν τῶν ὑποθέσεων. Ἐπειτα δῆλον ὅτι τοῦ αὐτοῦ λόγου ἐστὶ στερεὰ μὲν ἐξ ἐπιπέδων συγκεῖσθαι, ἐπίπεδα δ' ἐκ γραμμῶν, ταύτας δ' ἐκ στιγμῶν· οὕτω δ' ἐχόντων οὐκ ἀνάγκη τὸ τῆς γραμμῆς μέρος γραμμὴν εἶναι·

"maybe he [sc. Plato] says [it, sc. the cosmos] is generated for the sake of clarity, just as we attend to diagrams which come into being", [but] he says, "except perhaps the generation is not similar to the case of diagrams". Interestingly, Theophrastus seems to express greater uncertainty than Aristotle on the validity of the geometrical comparison.

So, concerning the others let there be another argument. But for those who speak in this manner and construct all bodies from surfaces, it is easy to observe all the ways in which they end up speaking in a contradictory way to mathematics. And yet, it would be correct either not to disturb mathematics or to disturb it by means of more convincing arguments than their hypotheses. Further, it's clear that, from the same reasoning that solids are composed from surfaces, surfaces are [composed] from lines, and these [sc. lines] from points. But if these things are so, it isn't necessary that a part of a line is a line.

The thinkers who hold that bodies are generated from surfaces are the Platonists, perhaps together with Plato.³⁵ Further, the Platonists' theory of generation is derived from the account of the primary bodies' generation in the *Timaeus*. After this objection, Aristotle continues by criticising the Platonists' postulation of indivisible lines, arguing that what is impossible in mathematics will now be impossible among natural bodies and that, whereas mathematics proceeds by abstraction (*ex aphaireseôs*), natural science proceeds from composition (*ex protheseôs*) (*Cael.* 299a12-21).³⁶ The reference to indivisible lines suggests that Aristotle is thinking specifically of Xenocrates, who was notable for having endorsed them.³⁷ Thus, it appears that Xenocrates was led to posit indivisible lines from his understanding of bodily generation from surfaces, which was itself based on the *Timaeus'* account of the primary bodies' generation. Moreover, in postulating the existence of indivisible lines, Xenocrates was in all likelihood appealing to the *Timaeus*, as David N. Sedley has also perceptively argued.³⁸ For in the *Timaeus*, the title-speaker analyses bodies into surfaces and surfaces into two kinds of right-angled triangle, but he does not proceed to

³⁵ Accordingly, *Cael.* 299a6-11 is recorded as Xenocrates fr. 41 Heinze = fr. 45 Isnardi Parente.

³⁶ This complaint that the Platonists do not distinguish properly between mathematical and natural-philosophical study, as well as that they do bad mathematics in their study of the natural world, is commonplace in Aristotle's criticisms of the Platonists' views. See e.g. *Phys.* 2.2, 193b22-194a12, *Meta.* B.2, 997b34-998a6, and M.2, 1077a1-5, b18-1078a15. For general discussion, see Cleary 1995.

³⁷ See the texts collected as Xenocrates frs. 41-49 Heinze = frs. 44-67 Isnardi Parente.

³⁸ See Sedley 2002: 67-68 and 2021a: 18-22, at 19-20. However, Sedley holds that Xenocrates' motivation for positing indivisible lines was to demonstrate the cosmos' *intrinsic* un-generatedness and freedom from destruction, as opposed to its conditional everlastingness thanks to God, which reflects the picture that is presented in the *Timaeus*. But, if Xenocrates and the other Platonists were appealing to the *Timaeus'* account of the primary bodies' generation in their defence of Plato's meaning, as I have argued, there is no need for them to relinquish the view that the cosmos' existence is ultimately dependent on God. See also Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente, quoted in n. 34 above, in which Xenocrates is quoted as saying that the cosmos' freedom from destruction is *not* a natural feature but is divinely guaranteed.

analyse triangles into even more basic geometrical units (*Tim.* 53c-d). However, he does hint at the possibility of further analysis by alluding to certain higher starting-points (*archai*) which are known to God and a privileged few human beings (*Tim.* 53d6-7). As Sedley notes, Xenocrates could naturally identify these starting-points with indivisible lines, perhaps even building on a pre-supposition which was held by Plato himself.³⁹ Thus, the Platonists' understanding of bodily generation out of surfaces, as well as their acceptance of indivisible lines, can both be traced back to the *Timaeus*' account of the primary bodies' generation itself.

Another relevant passage from Book 3 of *On the Heavens* comes from Aristotle's discussion of the way that the elements transform into one another in chapter 7. Here, Aristotle considers the possibility that elemental transformation occurs either through alteration of shape or by the elements' reduction to surfaces (*Cael.* 305b29-33). In examining the second possibility, he first states the absurdity of thinking that not all bodies are generated from one another (*Cael.* 306a2-4). This plainly alludes to the account of elemental transformation in the *Timaeus*, in which the primary body of earth, being assigned the geometrical form of the cube, does not undergo intertransformation because, unlike the three other geometrical forms, it is composed solely of right-angled isosceles triangles (*Tim.* 54b-d, 55b-c). This leads Aristotle into a more general complaint against the Platonists' approach to natural philosophy, censuring them for wishing to align their theories with certain pre-determined beliefs and stating theories which conflict with basic experience (*Cael.* 306a7-22). Then he adds a further criticism against them (*Cael.* 306a25-33):

Ἔτι δ' ἀνάγκη τοῖς ταῦτα λέγουσιν οὐκ ἐκ σώματος ποιεῖν γένεσιν· ὅταν γὰρ ἐξ ἐπιπέδων γένηται, οὐκ ἐκ σώματος ἔσται γεγονός. Πρὸς δὲ τούτοις ἀνάγκη μὴ πᾶν σῶμα λέγειν διαιρετόν, ἀλλὰ μάχεσθαι ταῖς ἀκριβεστάταις ἐπιστήμαις· αἱ μὲν γὰρ καὶ τὸ νοητὸν λαμβάνουσι διαιρετόν, αἱ μαθηματικά, οἱ δὲ οὐδὲ τὸ αἰσθητὸν ἅπαν συγχωροῦσι διὰ τὸ βούλεσθαι σῶζειν τὴν ὑπόθεσιν. Ἀνάγκη γὰρ ὅσοι σχῆμα ποιοῦσιν ἐκάστου τῶν στοιχείων καὶ τούτῳ διορίζουσι τὰς οὐσίας αὐτῶν, ἀδιαίρετα ποιεῖν αὐτά·

³⁹ See Aristotle, *Meta.* A.9, 992a21-23, in which Aristotle reports Plato's partial endorsement of indivisible lines. For brief discussion of this report, see Chapter 6, n. 39 below.

Further, it's necessary for those who say these things to make generation not from body. For, whatever is generated from surfaces will not be said to have been generated from body. Besides this, they're bound to say that not every body is divisible, but this conflicts with the most accurate sciences [i.e. mathematics]. For the mathematical sciences take even the intelligible to be divisible, whereas these [individuals] don't even agree that the perceptible is entirely [divisible] because of their wish to preserve their hypothesis. For those who make a shape for each of the elements and define their essences in this way are bound to make them [sc. the elements] indivisible.

This criticism seems to be based on the same objections which were raised in chapter 1, namely that the Platonists' geometrical analysis of bodies leads them to posit indivisible units which conflict with both mathematics and the natural phenomena. Specifically, Aristotle's compliant that, for the Platonists, not even what is perceptible is entirely divisible can be taken as a reference to Xenocrates' postulation of indivisible lines, which were introduced to account for bodily generation according to the report in ch. 1. Thus, the Platonists are again criticised for their understanding of bodily generation from surfaces, which is based on the account of bodily generation in the *Timaeus*.

Further evidence of the Platonists' interest in accounting for generation by means of the geometrical principles of the *Timaeus* comes from Aristotle's *Metaphysics*, and especially its first and final two books. Although this evidence cannot be fully investigated here, it is worth pointing to a few passages.⁴⁰ For instance, in Book 1, chapter 9, after having criticised Plato and the Platonists' views on Forms and their relationship to numbers, Aristotle says that, in wishing to bring essences in line with their principles, 'we (i.e. the Platonists) posit lengths from 'long and short', or from a kind of 'large and small', and surface from 'wide and narrow', and body from 'deep and shallow'. And yet, how will either a surface possess a line, or a solid a line and a surface?' (*Meta.* A.9, 992a11-15). Here, Aristotle's objection seems to rely on the notion that, according to the Platonists, the different geometrical dimensions of solids (or bodies), surfaces and lines (or lengths) are all generated from an opposing pair of natural

⁴⁰ On Books 13-14 (*Mu* and *Nu*) of the *Metaphysics*, see generally Annas 1976 (including her helpful overview of Plato's philosophy of mathematics, pp. 3-26). On the Platonists' arguments and their relationship to the middle books of the *Republic*, see Burnyeat 1987. For other testimonies which show the Platonists' interest in Timaeian geometry, see Speusippus fr. 28 Tarán = fr. 122 Isnardi Parente and Xenocrates frs. 26 and 34 Heinze = frs. 20 and 23 Isnardi Parente (as well as fr. 43 Isnardi Parente, not in Heinze's collection).

attributes that is appropriate to that geometrical dimension. That opposing pair of natural attributes constitutes the starting-point or principle (*archê*) of each dimension, and perhaps has its ultimate origins in the ‘large and small’, which Aristotle has earlier described as Plato’s starting-point of matter (*Meta.* A.6, 987b21-22). A similar picture emerges from some passages of Book 13, in which Aristotle portrays the Platonists as regarding the line, surface and body as ‘later’ than number and as saying that lengths, surfaces and solids are all ultimately composed from the ‘large and small’, which they understand to be a material starting-point (*Meta.* M.9, 1085a8-20, cf. 1085a32-1085b4). Furthermore, in chapter 4 of Book 14, Aristotle criticises the Platonists for their account of a generation of numbers (*Meta.* N.4, 1091a24-30):

Τοῦ μὲν οὖν περιττοῦ γενέσιν οὐ φασιν, ὡς δὴ λονότι τοῦ ἀρτίου οὔσης γενέσεως τὸν δ’ ἄρτιον πρῶτον ἐξ ἀνίσων τινὲς κατασκευάζουσι τοῦ μεγάλου καὶ μικροῦ ἰσασθέντων. ἀνάγκη οὖν πρότερον ὑπάρχειν τὴν ἀνισότητα αὐτοῖς τοῦ ἰσασθῆναι· εἰ δ’ ἀεὶ ἦσαν ἰσασμένα, οὐκ ἂν ἦσαν ἄνισα πρότερον· τοῦ γὰρ ἀεὶ οὐκ ἔστι πρότερον οὐθέν· ὥστε φανερόν ὅτι οὐ τοῦ θεωρῆσαι ἔνεκεν ποιοῦσι τὴν γενέσιν τῶν ἀριθμῶν.

They say that there is no generation of the odd, [thinking] that there is clearly [a] generation of the even. Some [individuals] construct the even [number-series] first from un-equals, after the ‘large and small’ have been equalised. So, necessarily inequality inheres in them before they have been equalised. But if they were always equalised, they wouldn’t be un-equal before (for there is nothing before what always is). Consequently, it’s obvious that they don’t make a generation of numbers for the sake of observation.

Aristotle’s report presumes that the Platonists gave an account of the generation of number.⁴¹ Specifically, they hold that the even number-series was generated from the equalisation of the ‘large and small’, which is the same starting-point as that which we have seen the Platonists ascribe to matter (*hulê*). However, Aristotle objects that this generational

⁴¹ In the second part of Plato’s *Parmenides*, Parmenides develops an account of the generation of numbers in the course of his discussion of the nature of the one / unity (*Parm.* 142b-144b). This account involves the generation of two and three, then the entire number-series and so number itself (*arithmos*). For an illuminating exegesis of this cryptic passage, see Călian 2015. I hope to relate this passage to the Platonists’ views on generation on another occasion.

sequence presumes that the ‘large and small’ were in a prior state of inequality, and that, ‘if they were always equalised, they wouldn’t be un-equal before’. This implies that, even though the Platonists held that (at least some⁴²) numbers were ultimately generated from the ‘large and small’, they *also* regarded them as eternal, so that the process of generation to which numbers are subject should not be seen as a generation from time. Rather, the Platonists claimed that their talk of a generation of numbers is motivated by theoretical considerations (‘for the sake of observation’), a phrase which recalls the didactic motive behind their interpretation of the *Timaeus* (‘for the sake of instruction’).⁴³ Yet Aristotle’s point is that the notion of generation still implies a time in which numbers did not exist, which stands in contradiction with their view that numbers always are. In the following section, we can see how this objection parallels the one which Aristotle gave in reply to the Platonists’ understanding of the cosmos’ generation in the *Timaeus*.

5. Aristotle’s objection and the question of Plato’s view

In the final section of this chapter, I will examine Aristotle’s objection against the Platonists’ defence and consider its implications for the modern ‘literalism’ debate around the *Timaeus*’ origin-story. After he has reported the Platonists’ comparison of the *Timaeus*’ account to geometrical diagrams, Aristotle objects to it as follows (*Cael.* 280a2-10):

Τοῦτο δ’ ἐστίν, ὥσπερ λέγομεν, οὐ τὸ αὐτό· ἐν μὲν γὰρ τῇ ποιήσει τῶν διαγραμμάτων πάντων τεθέντων εἶναι ἅμα τὸ αὐτὸ συμβαίνει, ἐν δὲ ταῖς τούτων ἀποδείξεσιν οὐ ταύτόν, ἀλλ’ ἀδύνατον· τὰ γὰρ λαμβανόμενα πρότερον καὶ ὕστερον ὑπεναντία ἐστίν· ἐξ ἀτάκτων γὰρ ποτε τεταγμένα γενέσθαι φασίν, ἅμα δὲ ἄτακτον εἶναι καὶ τεταγμένον

⁴² Aristotle writes that the Platonists *deny* the generation of odd numbers (*ho perittos* [sc. *arithmos*]), which implies the generation of even ones, whereas in the *Parmenides* it is clear that both two (which is even) and three (which is odd) are said to come into being. I am not yet sure how, if at all, we might account for this apparent discrepancy.

⁴³ On the language of observation (*theôria*, *theasthai*) used in connection with an early Platonist debate around the language of problems in geometry, as well as its connection to their understanding of the *Timaeus*, see Chapter 6.5 and 6.6.

ἀδύνατον, ἀλλ' ἀνάγκη γενεσιν εἶναι τὴν χωρίζουσιν καὶ χρόνον· ἐν δὲ τοῖς διαγράμμασιν οὐδὲν τῷ χρόνῳ κεχώρισται.

But this is, as we say, not the same [thing]. For, in the construction of diagrams, when everything has been posited, the same thing turns out to be at the same time, whereas in the demonstrations of these [individuals] it's not the same thing, but impossible. For the assumptions of 'prior' and 'posterior' are contradictory. For they say that, from things without arrangement, arranged things once came into being, but it's impossible for something to be without arrangement and arranged at the same time. Rather, it's necessary that there is generation separated out and time. But in the case of the diagrams nothing has been separated out in terms of time.

Previous 'non-literal' interpreters of the *Timaeus* have accused Aristotle of begging the question in his objection against the Platonists' defence. For example, Harold Cherniss wrote that 'Aristotle's rebuttal here is a *petitio principii*, for it assumes that the "production of order from disorder" was meant literally. The point of the defense, however, is just that it was not so meant but was used as a vivid method of representing two aspects of the world[,] both of which are present in it'.⁴⁴ However, I think that this interpretation is mistaken. This is because, if the Platonists were appealing specifically to the *Timaeus*' account of the primary bodies' generation in their comparison of the origin-story to geometrical diagrams, as I have been arguing, there *is* a sense in which they themselves hold that the cosmos is generated insofar as it has undergone a transition from a disorderly to an orderly state. As we have seen, the cosmos' generation understood as its transition to order from disorder is described at *Tim.* 30a3-5 within *Timaeus*' summary of God's constructive act. This passage is alluded to in Aristotle's objection, and it is quoted by Simplicius within his lengthier exposition of the Platonists' view. This suggests that the Platonists related the action which is described at *Tim.* 30a3-5 to their defence of the *Timaeus*' understanding of generation, which was centred on the construction of the primary bodies from the elementary triangles. The claims of priority and posteriority which Aristotle criticises as incoherent also presumably allude to the Platonists' view that the elementary triangles are prior to the primary bodies, as this language was used in Simplicius' report. Thus, *contra* Cherniss, Aristotle's objection does not rely on a

⁴⁴ See 1944: 421. Cherniss' interpretation of Aristotle's objection has been endorsed by, among others, Tarán 1971: 389 and 1981: 384-385.

petitio principii, since the Platonists' appeal to the *Timaeus*' account of the primary bodies' generation itself involves a transitional ordering act.

Furthermore, Aristotle's objection is itself cogent so long as it is analysed on its own terms. Aristotle objects that the comparison which the Platonists posit between the *Timaeus*' origin-story and geometrical constructions is un-true, i.e. invalid (*ouk... alêthês*, *Cael.* 279b34). Specifically, he contends that, whereas in the case of geometrical constructions all of the constituents exist 'at the same time' (*hama*), the same cannot be said for the cosmos' generation, but the transition from a disorderly to an orderly state requires a sequence of generational phases and (the presence of) *time* (cf. *genesin einai tên chôrizousan kai chronon*). This aspect of time needs to be analysed carefully. On the one hand, the Platonists' point was that the *Timaeus*' account of generation was not supposed to be understood as occurring *from time*, meaning *at some time* (cf. *pote* and *apo chronou* in Aristotle and Simplicius' reports, respectively). This suggests that the Platonists' own view, as well as the view which they attributed to Plato, was that the cosmos has existed for *all time*, i.e. that it is eternal and *un-generated* in terms of time.⁴⁵ But on the other hand, Aristotle objects that the analogy which they drew between geometrical construction and the *Timaeus*' account of the primary bodies' generation still commits them to a sequential process of generation (or what may be called generation *in time*). The objection is valid insofar as the kind of temporal generation on which Aristotle bases his critique is crucially different from the kind of temporal generation which the Platonists denied to the cosmos on Plato's behalf. Whereas the Platonists say that the cosmos is eternal but the primary bodies within the cosmos are generated inasmuch as they are constructed from surfaces, Aristotle says that the Platonists' theory of bodily generation requires an intermission of time, so it is impossible to maintain that the cosmos is also eternal.⁴⁶ Aristotle can thus absorb the Platonists' point that the cosmos is not generated *from time*, but he can complain that it is still generated *in time*, or over a sequence of temporal phases, and thus is (by his lights) unable to be eternal. So both Aristotle and the Platonists admit the cosmos' generation *in time*, but only Aristotle says that

⁴⁵ On the relationship of this denial of temporal generation to the *Timaeus*, see below.

⁴⁶ That the cosmos' generation is inferable from the generation of its elements was assumed in Aristotle's earlier argument against the view that the cosmos is both generated and eternal, before his introduction of the Platonists' view (*Cael.* 279b18-31). See §2 above.

generation *in* time is incompatible with the cosmos' existence eternally. Aristotle's objection is thus a valid hit so long as it is examined on its own terms.

Aristotle's objection shows the difference between his own and the Platonists' understanding of such related notions as time, generation, priority and posteriority in regard to the cosmos and its constituents. For Aristotle, there appears to be just one notion of the cosmos' generation, namely that which involves a sequence of temporal phases. Conversely, for the Platonists there are at least two contrasting notions of generation in play. On the one hand, there is a notion of temporal generation which they deny to the cosmos on the evidence of the *Timaeus*, namely generation *from* time. But on the other hand, there is a notion of generation which seems to be implied by their defence of the *Timaeus*' origin-story, and to which bodies are subject insofar as they are constructed from more basic geometrical principles. This notion of generation is derived from the notions of priority and posteriority which they discerned in the *Timaeus*' account and to which they ascribed an explicit didactic purpose ('for the sake of instruction'). In light of this didactic connection, we may describe the Platonists' notion of generation as 'explanatory' inasmuch as it was intended to explain the nature of the prior and posterior elements within the cosmos. Aristotle's objection can then be understood to lie in exposing the fact that this 'explanatory' kind of generation is also necessarily 'temporal', in the sense that it entails a sequence of temporal phases ('generation *in* time'). Aristotle thus takes over the temporal component which the Platonists themselves evoked and turns it against them as a point of *dis*-analogy with the geometrical parallel.

How should we describe the early Platonists' position on the cosmos' generation, as well as their interpretation of the *Timaeus*? As we have already discussed, the Platonists are traditionally described as 'non-literal' or 'metaphorical' interpreters of the origin-story. However, I have highlighted that this terminology is used in various ways within the modern scholarly debate, and in the previous chapter I chose to limit its scope to the analysis of features within the *Timaeus*' account itself (as opposed to its endorsement of features of the cosmos in fact). Moreover, in this chapter we have seen that the early Platonists understood all the features of the origin-story in the way in which they appear at face value and were presumably meant to be understood by Plato. Insofar as the Platonists accept this, I argue that they can be described as '*literal*' readers of the origin-story, not 'non-literal' readers as they are commonly known. But the Platonists distinguish themselves from most modern

‘literal’ interpreters in distinguishing two ways in which the origin-story could be understood. On the one hand, they deny the cosmos’ temporal generation, meaning its generation *from* time. But on the other hand, they admit that the bodily elements within the cosmos are generated insofar as they derive from more basic geometrical entities. This second kind of bodily generation has an explanatory aim, as they emphasised, but it also implies a sequence of generation (or generation *in* time), as Aristotle objected. So, although the Platonists are ‘literal’ readers of the *Timaeus*, they hold that the cosmos is eternal and that the description of its bodily features as generated has a didactic end in view.

Finally, what implications does this have for Plato’s own cosmogonic opinion? This is, after all, the key question which divides ‘literal’ and ‘non-literal’ interpreters of the *Timaeus* within the modern scholarly debate. As we have discussed, the Platonists’ defence of the *Timaeus*’ origin-story was intended as a defence of Plato’s viewpoint as well as their own, which shows that they (as well as Aristotle) regarded the words of Timaeus as a reflection of Plato’s position. I have also argued independently in defence of this ‘authorialising’ approach, while also emphasising that there are important things to say about Timaeus’ dramatic persona.⁴⁷ What, then, does the *Timaeus* say about the cosmos’ generation? Firstly, it infers that the cosmos is generated from its status as a visible, tangible and bodily entity, which entails that it has come into being in opposition to that which always is (*Tim.* 28b-c, cf. 27d-28a). But it also affirms that time (*chronos*) has come into being together with the cosmos, as well as that the cosmos has existed for all time, both from the past and into the future (*Tim.* 38b-c, cf. 37c-e).⁴⁸ The *Timaeus* thus seems to build into itself a defence against the objection that its generation was *from* time, if this presumes that time already existed before the generation of the cosmos. Thus, the cosmos as it is presented in the *Timaeus* is ‘sempiternal’, or everlasting in both temporal directions⁴⁹, but it is also generated on account of the fact that it belongs to the ontological domain of becoming versus that of being. In order to capture this mixed view on time and the cosmos’ generation, we might describe Plato as a ‘proto-sempiternalist’ with regard to the cosmos’ nature, in opposition to later forms of

⁴⁷ See Introduction, §2 (‘The *Timaeus*’ relationship to other Platonic works’).

⁴⁸ For discussion, see Chapter 3.2.2 above.

⁴⁹ This use of the language of sempiternity complies with its use in the modern ‘literalism’ debate; see e.g. Broadie 2012: 243, n. 2, who uses the term ‘sempiternalism’ to denote ‘the view that the cosmos in the form it is in today is everlasting in both temporal directions’. However, Broadie, like most ‘literal’ interpreters, denies that this view is endorsed by the *Timaeus* itself.

sempiternalism, such as Aristotle's, which hold that the cosmos is eternal but also (unqualifiedly) un-generated. Aristotle's claim to be the *first* to hold that the cosmos is not generated is thus strictly speaking correct, but his view finds a notable forerunner in Plato.

5 The prior generation of soul to body in three Platonic dialogues

1. Introduction

The prior generation of soul to body is a key tenet of Plato's later thought. In three dialogues – the *Timaeus*, the *Phaedrus*, and the *Laws* – the soul's nature, its relationship to body and its general role in the cosmos are discussed by three different interlocutors and in three different philosophical settings. In the *Timaeus*, the priority and seniority of soul to body is asserted within the course of a long narrative on the cosmos' generation (*Tim.* 34b-c). In the *Phaedrus*, Socrates demonstrates the immortality of soul on the basis of its essential self-motion and its status as a starting-point or principle (*archê*) of motion for all everything else which possesses motion (*Phdr.* 245c-246a). Finally, in the tenth book of the *Laws* the Athenian stranger argues against an anonymous group of atheistic natural philosophers by demonstrating that soul is (generated) prior to body and that it is generally responsible for the motions and alterations within the cosmos (*Laws* 891c-899d). All three dialogues use the same term to refer to the soul (*psychê*) and all ascribe a more extensive cosmological function to the soul than can be observed in other works, such as the *Phaedo* and the *Republic*, which had tended to focus on the soul's nature within the human body and its individual experiences after death.¹

Commentators who have previously compared these three dialogues with one another have traditionally highlighted a number of alleged divergences in each one's presentation of the soul's essential nature and powers.² Most notably, they have pointed to a notorious discrepancy in Plato's portrayal of the soul's generation. Whereas the soul which belongs to the cosmos as well as the individual souls of living beings are brought into being by the

¹ See *Phd.* and *Rep.* *passim*. At the same time, I do not envision a hard-and-fast break between these earlier discussions of the soul and the later ones, but only a progressive development in reflection on the soul's connectedness to the cosmos. For traces of cosmic psychology already in the *Phaedo*'s closing myth, see Long 2021.

² For previous comparative investigations, see Vlastos 1939: 390-399 and 1964: 414-419, Cherniss 1944: 421-431, Hackforth 1965, Tarán 1971: 375-378, 384-388, Easterling 1967, Demos 1968, Parry 2002, Carone 2005: 164-170, Mohr 2005: 167-180, Ilievski 2013 and Marinescu 2021. References to individual issues will be given in the course of the main discussion.

demiurge in the *Timaeus*, in the *Phaedrus* Socrates concludes that soul is *un-generated* (*agenêton*) on account of its status as a self-mover. This apparent contradiction has given rise to the observation of further differences. For example, while both the *Phaedrus* and the *Laws* unambiguously define the soul by reference to its self-motion (albeit in slightly different ways, as we shall see), the self-motion of the soul in the *Timaeus* has historically been contested because of its status as a generated entity. Furthermore, whereas the soul is regarded as a starting-point of motion in the *Phaedrus* and the *Laws*, this role appears to be somehow qualified in the *Timaeus*, since Timaeus there describes a state of affairs *before* the cosmos' generation in which soul seems to be absent but in which there is motion of a disorderly kind among the raw materials of the demiurge's construction. All this suggests that, according to a prevailing scholarly view, the *Timaeus* represents a somewhat unique perspective within Plato's discussions of the soul and its relationship to the natural world more generally. Inevitably, as with many other aspects of its interpretation, these controversies are also linked to the contested 'literalism' of the *Timaeus*' origin-story, so that one's understanding of the relationship between these three works is necessarily shaped by one's broader attitudes towards the design and intentions of the origin-story as a whole.

In this chapter, I will defend a more compatibilist approach. In short, I will argue that there are *no* major divergences between the *Timaeus*, the *Phaedrus* and the *Laws* when it comes to these dialogues' presentation of the soul's generation, its self-motion and its rule over the motions of the body. Accordingly, I hope to demonstrate that these three works can be understood coherently with one another and that, when they are placed alongside each other, they shed mutual light on various aspects of the soul's essential nature. The main discussion will be divided into three main sections, which focus on the *Timaeus* (§2), the *Phaedrus* (§3), and the *Laws* (§4) in turn. Then, in the final section (§5) I will draw some broader conclusions which follow from a coherent understanding of the soul's generated nature.³ In this way, we can better appreciate how the *Timaeus*, far from presenting an anomalous position on the soul's nature in comparison with the *Phaedrus* and the *Laws*, offers special insights into psychology thanks to its unique cosmogonic vantage-point.

³ In setting things up in this way, there is a natural connection between this chapter and Chapter 1, which argued for a continuous understanding of soul's immortality between the final argument of the *Phaedo* and the *Timaeus*. Whereas that chapter focussed on the nature of immortality and indestructibility, this chapter is centred on the nature of generation and priority with respect to the soul.

2. The *Timaeus*

(i) The prior generation of soul

As we have examined in the previous two chapters, the *Timaeus* presents a story of cosmic generation.⁴ This story incorporates within it a story of the generation of the soul, meaning both the cosmos' soul (35a-36d) and the individual souls of mortal living beings, whose number is equal to that of the stars (41d-e). After Timaeus has described the construction of the cosmos' body and summarised how its body and soul were fitted together, he turns to explain the construction of the cosmos' soul (34b10-35a1):

Τὴν δὲ δὴ ψυχὴν οὐχ ὡς νῦν ὑστέραν ἐπιχειροῦμεν λέγειν, οὕτως ἐμηχανήσατο καὶ ὁ θεὸς νεωτέραν—οὐ γὰρ ἂν ἄρχεσθαι πρεσβύτερον ὑπὸ νεωτέρου συνέρξας εἴασεν—ἀλλὰ πως ἡμεῖς πολὺ μετέχοντες τοῦ προστυχόντος τε καὶ εἰκῇ ταύτη πῃ καὶ λέγομεν, ὁ δὲ καὶ γενέσκει καὶ ἀρετῇ προτέραν καὶ πρεσβυτέραν ψυχὴν σώματος ὡς δεσπότιν καὶ ἄρξουσιν ἀρξομένου συνεστήσατο ἐκ τῶνδὲ τε καὶ τοιῷδε τρόπῳ.

The soul was in fact not contrived by God to be younger [sc. than the body], in the way that we are attempting to say it is now later – for he wouldn't allow a [thing] which is older to be ruled by [a thing which is] younger, after yoking [them] together – but somehow we have a great share of the fortuitous and we're also speaking in this random kind of way. As it is, both with regard to generation and with regard to excellence soul is prior to and older than body. He [sc. God] constructed [it] as [a] queen and ruler-to-be of [body] [as] a to-be-ruled-over [party] from the following things and in the following way.

In this intricate passage Timaeus states that soul is prior to and older than body both in terms of generation and in terms of moral excellence, even though he has just described the construction of the cosmos' body *before* that of the cosmos' soul. A juxtaposition is thereby

⁴ All un-marked Stephanus references in this section are to the *Timaeus*.

established between the order of the construction-*narrative*, on the one hand, and the order of the construction-*process*, on the other hand. Let us compare these two orders side-by-side:

Presented order of construction	Actual order of construction
The cosmos' body (31b-34a)	The cosmos' soul (?)
The cosmos' soul (35a-37c)	The primary bodies of fire, air, water and earth (?)
Time, the fixed stars, and the cosmic gods (37c-41b)	The cosmos' body (?)
The immortal souls of mortal living beings (41d-e)	Time, the fixed stars, and the cosmic gods
Some parts of human bodies (head, eyes) (45d-47c)	The immortal souls of mortal living beings (?)
The primary bodies of fire, air, water and earth, in this order (see 53b-56c, at 56b-c)	The bodies of mortal living beings
The remainder of the bodies of mortal living beings (69d-79a, 91d-92c)	

It is first necessary to justify some interpretive choices concerning the exact order of God's constructive process, as it has been re-constructed in the right-hand column. To begin with, I take it that the primary bodies of fire, air, water and earth were individually constructed by the demiurge in a prior stage to his construction of the cosmos' body, since the cosmos' body is composed out of them. Therefore, it seems correct to place their generation at an earlier stage. Secondly, we have just noted that the construction of the cosmos' soul is said to come before the construction of the cosmos' body. But does this mean that the construction of the cosmos' soul also preceded the construction of the primary bodies? This question, which I have not seen asked explicitly within the secondary literature, poses some intriguing questions.⁵ Timaeus says that 'both in respect of generation and in respect of excellence, soul

⁵ In particular, it seems to allow for the possibility of a 'pre-cosmic' soul in existence *before* God's original intervention among the disorderly state of affairs. However, this kind of 'pre-cosmic' soul can still be differentiated from the 'pre-cosmic' soul which was posited by Francis M. Cornford (1937: 197, 205, 208) to account for the disorderly pre-cosmic motions. For the soul, being first-born, possesses *orderly* motions, while I take it that the disorderly motions in the pre-cosmos can be explained by the nature of the pre-cosmic materials themselves. See §5 below.

is prior to and older than body'. The generalising (almost gnomic) character of this remark, as is marked by the absence of definite articles throughout, suggests that the soul does not precede the body in a merely accidental sense – in the way that the walls accidentally precede the roof in the construction of a house – but that soul *as such* is prior to body *as such*, so its generation ought to be conceived first. Timaeus also explains that the soul's generation is earlier because God wouldn't allow a thing which is older to be ruled by a thing which is younger, which implies that the soul is a natural ruler of the body. Accordingly, since things which are naturally rulers are presumed to come before things which are naturally ruled, soul's construction may be imagined to come before not only the cosmic body's construction but the construction of the bodily domain as such, and so before the construction of the primary bodies.⁶

Thirdly, I take it that the immortal souls of mortal living beings are constructed *after* God's construction of the cosmos' soul, its body, and the entire heavenly infrastructure, but *before* the cosmic gods' construction of the mortal beings' bodies.⁷ The immortal souls are constructed by God or the demiurge after he has delivered his instructions to the cosmic gods to construct the living beings and so make the heavens complete (41b-d). This section of the narrative makes clear that the cosmic gods' construction was already completed, and that the construction of immortal souls out of the 'leftovers' of the mixture which made up the cosmos' soul came after it (41d-e).⁸ So, even though we have seen that soul is (generally) prior to body, it does not seem to be the case that the generation of *every* soul took place before the generation of *every* body. Timaeus might also hint at this in his statement that '[God] wouldn't allow a [thing] which is older to be ruled by [a thing which is] younger, *after yoking [them] together (suneirxas)*'. For this addition seems to show that what is significant is that the soul (which is the older thing) will naturally rule the body (which is the younger thing) *during the*

⁶ Additional support for the assumption that the soul's construction preceded the construction of the primary bodies in the *Timaeus* can be sourced from the *Laws*, in which the Athenian stranger says not only that soul is prior to body but also that the things relating to soul (such as judgment, supervision, intelligence, craft and law) are prior to the things which belong to body (such as opposing pairs of secondary qualities) (*Laws* 892a-b, 896c-e). See §4 below. For the point that body *properly speaking* (that is, geometrically intelligible body) only comes into being together with the cosmos, see Chapter 3.2 above.

⁷ I owe thanks to Thomas K. Johansen for help with the argument in this paragraph.

⁸ Whereas the immortal souls of mortal living beings are composed from 'leftovers' of the cosmic soul's mixture, the bodies of mortal living beings are taken directly from the cosmos, and with the stated intention that they be given back (42e-43a). For an argument that this matters for individual responsibility (we possess our own souls but we borrow our bodies), see Broadie 2012: 95-100.

period of their attachment, as opposed to any state in separation from one another. This in turn draws attention to the relational way in which soul's priority to body is introduced and explained: Timaeus does not simply say that soul is first-born because of its individually supreme nature, but he says that it is *prior* and *older* than body because of its natural capacity to rule the body and its superior moral stature. I will come back to this relational dualism in connection with the *Phaedrus* and the *Laws* later.

Why did Timaeus – and, behind him, Plato – choose to narrate the cosmos' bodily construction *first* and its psychic construction *second*? Timaeus gives the following as his explanation: '[S]omehow we have a great share of the fortuitous and we're also speaking in this random kind of way'. I want to suggest that this explanation sets up a puzzle for the reader of the *Timaeus* by its apparent vagueness and almost wilful inadequacy. For one thing, fortune or accident (*to prostuchon*) affects every aspect of the *Timaeus'* narration, so there seems to be no particular reason to think that it should have compelled Timaeus to recount the construction of the cosmos' body before that of the cosmos' soul.⁹ For another, Timaeus describes his approach as 'random' (*eikêi*), but the following account of the cosmic soul's construction (35a-36d) features some of the most complex mathematical precepts in the *Timaeus*, so this account of the demiurge's craft in this section should be regarded as anything but a fluke.¹⁰ Thus, the idea that Timaeus described the cosmos' body before the soul, but in fact that the generational sequence is the reverse, simply as a result of chance should seem to us almost laughably unconvincing. Rather, I take it that this narrative arrangement is intended to make us as readers pause and think more deeply on the nature of soul's priority over body and its consequences. Why did Plato decide not to describe the soul's generation first?

One historically popular response to this puzzle is to maintain that Plato intended to distance himself from the impression that the cosmos has come into being across a number of sequential (and so 'temporal') phases altogether. On this approach, none of the

⁹ Andy Gregory has suggested to me that the talk of fortune might be read as a side-effect of the role of necessity, which gives rise to the kind of reasoning that brings about a chance and un-arranged outcome on each occasion (46e, cf. 69b).

¹⁰ Platonic vocabulary for randomness (*eikêi*) is both distinct from and etymologically linked to Platonic vocabulary for likeness and the use of images (*eikos*, *eikôn*). On the claim that Socrates' 'random' approach in the *Phaedo* (97b7) is to be identified with his 'second voyage' (which uses images), see Chapter 2.4 above.

constituents of the cosmos (such as its body, soul or internal contents) are really meant to be understood as generated, but the description of their generation was given for the sake of didactic explanation (*didaskalias charin*).¹¹ In the previous chapter, I sought to expose the historical shortcomings of this view, by showing that the thinkers with whom it is traditionally affiliated – a group of early Platonists centred around Xenocrates – do *not* question the presentation of the origin-story as such, but were rather at pains to emphasise the compatibility of its generatedness with its eternal nature. While keeping that discussion in mind, here I only want to refute the notion that this passage in any way undermines the appearance that the body and soul's generation were not intended to be taken 'literally'. Timaeus says that soul is *prior* to and *older* than body (*proteran kai presbuteran*), even though he is about to embark on a narration which presents it as *later* (*husteran*). Since the sense of 'later' is clearly sequential in character (by referring to the order of presentation), it is natural to take the sense of 'prior' as correspondingly sequential as well. Hence, it makes no sense to say that Timaeus' references to priority and posteriority lack any sequential bearing whatsoever, in support of the impression that the generation is not really meant to reflect a transitional act at all.¹² The juxtaposition of the presented and actual orders of construction *reinforces*, rather than contradicts, the 'literalist' assumption that the cosmos' generation is presented as occurring over a number of connected phases. Timaeus makes clear that both the soul and the body are subject to generation, but he presents their generation the 'wrong' way around.

Timaeus' inversion of the presented and actual orders of construction counts as an example of what the ancient rhetorical tradition later called a *hysteron proteron* construction. According to this, the narration of a certain sequence of events is inverted, so that the event which occurs at a chronologically later point is mentioned earlier and the event which is

¹¹ See, e.g., Cherniss' comment on our passage (1944: 424-425, at 424): 'Why, then, if soul is prior to body, did Plato not adopt that order for his exposition? Obviously, "prior and elder" does not mean "earlier"; after all, soul, since it is intermediate between the ideas and the sensible universe (35A-B) cannot exist "before" the sensible world either. In fact, Plato's warning means that *any* temporal sequence in the account must be a falsification' (original italics). A similar view is taken in Tarán 1971: 374-375, at 375: 'The reversal [viz. of the orders of presentation and construction] and warning look, then, like a conscious device to call attention to the fact that "prior" and "posterior", or "older" and "younger", should not be taken in the temporal sense'.

¹² However, this does not mean that the language of priority and posteriority is *merely* sequential (or temporal) in character. Rather, as we have discussed, the priority of soul's generation is grounded in its natural capacity to rule the body, which shows that a more-than-temporal understanding is at play. See §5 below.

chronologically earlier is mentioned later. Commentators on this rhetorical device note that it is characteristically designed to emphasise the *earlier*-mentioned event by putting it in a prior position, even when it is illogical for it to be understood as chronologically prior.¹³ In our case, however, the opposite seems to be true: Timaeus does not narrate the cosmic body's construction first because he regards it as more important than that of the cosmic soul, but he narrates the cosmic soul's construction second *even though* – and even whilst! – he says that the soul's construction was first. I take this to imply that the *Timaeus*' swapping of the narrative and constructive sequences should not be reduced to a merely rhetorical flourish, even though there is clearly a rhetorical component to the way in which the inversion is introduced and explained. I will suggest a more substantive explanation of the inverted sequence later, after we have examined the *Laws*' account of the soul's priority to body.

(ii) The self-motion of generated souls

I turn now to the *Timaeus*' presentation of the soul's self-motion and its relationship to the soul's generation. Commentators have debated whether or not self-motion is ascribed to the soul in the *Timaeus*. For example, some have flatly denied that the *Timaeus* endorses the soul as a self-mover, regarding this as a departure from other dialogues such as the *Phaedrus* and the *Laws*.¹⁴ Others have acknowledged that the soul is self-moving also in the *Timaeus*, but argued that Plato has deliberately played down or omitted references to this notion, on the grounds that to draw greater attention to it would undermine other features of his narration, such as its fundamental generationalist cast.¹⁵ Still others have argued that the *Timaeus* is wholly committed to the soul's self-motion and that there is no attempt to veil the occasional

¹³ See Smyth §3030.

¹⁴ So, e.g., Corcilius 2018: 62.

¹⁵ See again Cherniss 1944: 427-431, at 429: '[H]ad [Plato] declared that the soul is self-motion, he would have ruined the whole structure and form of the *Timaeus*; if he was to put his exposition of the nature of the universe into the synthetic form of a cosmogony or "creation myth"..., he had to suppress discussion of that essential characteristic which for him guaranteed that the soul – and, therefore, the physical universe also – is without beginning and without end.' So also Tarán 1971: 375-378. Significantly, both Cherniss and Tarán claim that no reference is given to the soul's self-motion in Timaeus' account of the soul's construction (35a-36d); on this point, however, see below.

references to it throughout his account.¹⁶ I fundamentally agree with the last group of interpreters that there is psychic self-motion in the *Timaeus*, but I want to argue that the occasional references to it are more subtle and complex than is sometimes allowed. Let us look at the key passages one by one.

The first piece of evidence comes from a part of Timaeus' account of the (cosmic) soul's cognition (37b3-6):

λόγος δὲ ὁ κατὰ ταῦτόν ἀληθῆς γινόμενος περὶ τε θάτερον ὄν καὶ περὶ τὸ ταῦτόν, ἐν τῷ κινουμένῳ ὑφ' αὐτοῦ φερόμενος ἄνευ φθόγγου καὶ ἡχῆς...

The account, when it is uniformly true and is concerned with both the Different and the Same, is borne along without utterance or noise in the thing which is in motion by itself...

Commentators who are inclined to see self-motion in the *Timaeus* usually read this as a direct reference to the soul's self-motion, meaning that 'the thing which is in motion by itself' is straightforwardly identified with the soul. However, as Francis M. Cornford already observed, the choice of the *neuter* participle here (*tôî kinoumenôî*) – rather than the feminine, which we might expect if the soul were the reference – suggests that, properly speaking, Timaeus is referring to the entire organism here, i.e. the living being which is constituted of a body joined to a soul.¹⁷ Thus, this passage strictly affirms that the *living being* is a self-mover, rather than specifically his or her soul. We therefore need to confirm it as a Platonic view that organic self-motion is owed to an organism's self-moving soul, before we cite this passage as conclusive evidence of the soul's self-motion.

The next passage which implies, but does not state explicitly, that the soul is a self-mover is 46c-e, in which Timaeus presents his understanding of causality and explanation in the cosmos.¹⁸ First he observes that the primary bodies of fire, air, water and earth, although

¹⁶ See Vlastos 1964: 414-419, followed by Broadie 2012: 258 n. 28, and Karfik 2004: 180-185.

¹⁷ See Cornford 1937: 95 n. 2: 'The self-moved's thing is the Heaven as a whole, which, as a living creature, is self-moved by its own self-moving soul.'

¹⁸ On this passage, see also Chapter 2.3 above.

they are generally said to be ‘responsible’ (meaning a ‘cause’; *aitia*, from the adjective *aitios*), are in fact ‘co-responsible’ (*sunaitia*, from the adjective *sunaitios*) for general processes within the cosmos. Then he affirms that what should be actually held as responsible is soul, because it alone possesses intelligence. The distinction between what is responsible and what is co-operatively responsible is next assumed to underpin the opposition between the ‘primary’ reasons (*aitiai*) which belong to rational nature and the ‘secondary’ reasons which come about by some things which are moved and other things which are in motion from necessity. Now, since secondary reasons are constituted by things which both move and are moved by others from necessity, i.e. bodies, one may assume that primary reasons are correspondingly constituted by that which moves itself, i.e. the soul. This passage thus indirectly endorses the soul’s self-motion, but it does not state this notion outright.

Two further passages of significance feature in the latter part of Timaeus’ account. The first comes from his discussion of plants, in which a tacit connection is drawn between the (immortal or rational) soul and the possession of self-motion (77b6-c5):

πάσχον γὰρ διατελεῖ πάντα, στραφέντι δ’ αὐτῷ ἐν ἑαυτῷ περὶ ἑαυτό, τὴν μὲν ἔξωθεν ἀπωσαμένῳ κίνησιν, τῇ δ’ οἰκείᾳ χρησαμένῳ, τῶν αὐτοῦ τι λογίσασθαι κατιδόντι φύσει οὐ παραδέδωκεν ἡ γένεσις. διὸ δὴ ζῆ μὲν ἔστιν τε οὐχ ἕτερον ζώου, μόνιμον δὲ καὶ κατερριζωμένον πέπηγεν διὰ τὸ τῆς ὑφ’ ἑαυτοῦ κινήσεως ἐστερῆσθαι.

For it [sc. a plant] accomplishes all things passively. But its generation has not permitted it to calculate any of its own [businesses] by turning itself within itself around itself, repelling motion from without and enacting its own motion, observing by nature. Therefore, it is alive and nothing other than a living being, but it stays fast, static and rooted, because of its lack of self-motion.

The final words of this description refer unambiguously to self-motion.¹⁹ Thus, Timaeus is saying that plants are not self-movers because they lack the capacity to calculate, which is assumed to arise from internal circular motion. Plants lack the capacity for internal circular motion because they lack an immortal or rational soul. Therefore, this passage provides confirmation that an organism’s self-motion derives from its self-moving soul and *indirectly*

¹⁹ Pace Cherniss 1944: 428 n. 363.

implies that the immortal or rational soul is a self-mover. But again, this aspect needs to be teased out of the passage; it is not stated in blank terms. Finally, Timaeus refers again to self-motion after he has prescribed the appropriate regimens for the soul and the body (89a1-3):

τῶν δ' αὖ κινήσεων ἢ ἐν ἑαυτῷ ὑφ' αὐτοῦ ἀρίστη κίνησις—μάλιστα γὰρ τῇ διανοητικῇ καὶ τῇ τοῦ παντὸς κινήσει συγγενής—ἢ δὲ ὑπ' ἄλλου χείρων·

In turn, the best motion of [all] motions is that [which occurs] within itself by itself – for above all it is kindred with the [motion] of thinking and the motion of the universe – whereas [motion] by another is worse.

Here, we do have an explicit reference to self-motion.²⁰ But this time, no mention is made of the soul. Timaeus says that self-motion is best because it stands in an affinity to the motion of thinking and the universe (cf. *sungenês*). The motion of thinking presumably refers to the naturally circular motion(s) of the soul, while the motion of the universe is identifiable with the naturally circular motion of the cosmos itself. Thus, the cosmos is presented as a self-mover because of its self-moving soul. In summary, the *Timaeus* is fully signed up to the soul's self-motion, but its allusions to this aspect are often indirect and embedded within the context of considering the entire organism's mobility.

The question we should ask, then, in light of this is not whether or not there is psychic self-motion in the *Timaeus*, but what features of the soul are such as to enable it to be a self-mover. Commentators have sometimes perceived a tension between the soul's status as a self-mover and its generation by the demiurge. If a soul is self-moving, it moves by (the agency of) itself. But, if a soul moves by itself, it does not depend on anything else for its motion (meaning its capacity for motion). The generation (and destructibility) of the soul by God might be thought to threaten the soul's capacity for independent motion, since it suggests one sense in which the soul's motion is not ultimately owed to itself.²¹ It was in view of this uncertainty

²⁰ Pace Cherniss *ibid*.

²¹ On the demiurge's 'ability' to destroy the soul, see Chapter 1 *passim*.

that Gregory Vlastos distinguished two suppositions, of which he contended that only the first applied to the soul in the *Timaeus*²²:

1. The demiurge generates the soul.
2. The demiurge generates the self-motion of the soul.

However, Vlastos' arguments for distancing supposition (2) from the *Timaeus* have not always been convincing.²³ If the demiurge generates the soul, why does he also not generate its self-motion? In what follows I argue that there is one sense in which the demiurge *does* generate the soul's self-motion, but another sense in which the soul's self-motion (meaning its inherent capacity for motion) is owed to itself in such a way that it is not generated directly by the demiurge. Just before proceeding to this argument, we might compare the case of the bodily motions which inhere in the raw materials before God's intervention. In the bodily case, God does not generate the motions of the primary bodies from their having *no* motions before. Rather, he imposes geometrically intelligible form on the primary bodies in a way that also perfects their motions in a co-ordinated way and in a manner that complies with their natures from necessity. Thus, God can be said to generate orderly and harmonious motion among the primary bodies, but he is not responsible for their motions as such.²⁴ Can we re-construct a similar story for the soul?

Timaeus begins his account of God's construction of the cosmos' soul as follows (35a1-b4):

τῆς ἀμερίστου καὶ ἀεὶ κατὰ ταύτῃ ἐχούσης οὐσίας καὶ τῆς αὖτε περὶ τὰ σώματα
γιγνομένης μεριστῆς τρίτον ἐξ ἀμφοῖν ἐν μέσῳ συνεκράσατο οὐσίας εἶδος, τῆς τε
ταύτου φύσεως [αὖτε περὶ] καὶ τῆς τοῦ ἐτέρου, καὶ κατὰ ταύτῃ συνέστησεν ἐν μέσῳ τοῦ
τε ἀμεροῦς αὐτῶν καὶ τοῦ κατὰ τὰ σώματα μεριστοῦ· καὶ τρία λαβὼν αὐτὰ ὄντα
συνεκράσατο εἰς μίαν πάντα ιδέαν, τὴν θατέρου φύσιν δύσμεικτον οὔσαν εἰς ταῦτον
συναρμόττων βίᾳ. μειγνὺς δὲ μετὰ τῆς οὐσίας καὶ ἐκ τριῶν ποιησάμενος ἓν, πάλιν

²² See Vlastos 1964: 416. I have slightly modified Vlastos' two formulations.

²³ See Tarán 1971: 376-378, pointing to the demiurge's activities with respect to the soul's motion at 36c-d.

²⁴ For defence of this interpretation, see Chapter 3.3 above.

ὅλον τοῦτο μοίρας ὅσας προσῆκεν διένειμεν, ἐκάστην δὲ ἔκ τε ταύτοῦ καὶ θατέρου καὶ τῆς οὐσίας μεμειγμένην.

From the essence which is undivided and always possesses the same state and from the [one] which in turn comes to be divided in the domain of bodies, he [sc. God] blended together a third kind of essence from both of them, which was intermediate. And [from] the nature of the Same and [that] of the Different, he established [a third kind] also in the same way, which was intermediate between the undivided [kind] of them and the [kind] which is divided on the basis of bodies. Having taken three things, which were these, he blended them together into one whole form, fitting the nature of the Different together with the Same by force because it was difficult to mix. By mixing them together with [the] essence and having made one from three, he next assigned to this entirety as many portions as was fitting, each [portion] having been mixed from the Same and the Different and [the] essence.

The soul is constructed out of three core ingredients, which are themselves derived from six original ingredients, or an undivided and divided kind of each one.²⁵ The three core ingredients of the soul are essence (or ‘being’, ‘substance’, ‘level of reality’; *ousia*), the nature of the Same, and the nature of the Different. The significance of the demiurge’s choice of these ingredients and their combination is not directly explained in the following narrative, and we know that their meaning was already scrutinised and interpreted in different ways among Plato’s successors in the early Academy.²⁶ As for the *Timaeus*’ modern readers, commentators at least

²⁵ This interpretation presumes Proclus’ reading of the passage; see his *Comm.* In *Timaeum* II.155-156 Diehl, quoted and endorsed in Grube 1932 and Cornford 1937: 59-66, at 59-61. For an alternative understanding, however, see next note.

²⁶ Plutarch, in his treatise devoted to the soul’s generation in the *Timaeus*, distinguishes between two interpretations which he ascribes to Xenocrates and Crantor (together with their followers) respectively (*Procr. An.* 1012d-1013a = Xenocrates fr. 68 Heinze = fr. 108 Isnardi Parente = Crantor fr. 10 Mette, trans. Cherniss): ‘The former [Xenocrates et al.] believe that nothing but the generation of number is signified by the mixture of the indivisible and divisible being, the one being indivisible and multiplicity divisible and number being the product of these when the one bounds multiplicity... but they believe that this number is not yet soul, for it lacks motivity and mobility, but that after the commingling of sameness and difference, the latter of which is a principle of motion and change while the former is that of rest, then the product is soul, soul being a faculty of bringing to a stop and being at rest no less than of being in motion and setting in motion. Crantor and his followers, on the other hand, supposing that the soul’s peculiar function is above all to form judgments of the intelligible and the perceptible objects and the differences and similarities occurring among these objects both within their own kind and in relation of either kind to the other, say that the soul, in order that it may know all, has been blended together out of all and that these are four, the intelligible nature, which is ever invariable and identical, and the passive and mutable nature of bodies and furthermore that of sameness and of difference because each of the former two also partakes of diversity and identity.’ On the differences between our text of the *Timaeus* and Plutarch’s (which may also have been the text read in the early Academy), see Ferrari 1999. On other early Academic interpretations of *Tim.* 35a-b, see Opsomer 2020.

since Cornford have often been tempted to associate the soul's ingredients with the five great kinds which are mentioned in the *Sophist*, namely being or essence (*ousia*), sameness, difference, motion (*kinêsis*) and rest (*stasis*). Recently Gábor Betegh has also argued compellingly that the *Timaeus*' account of cognition (37a-c) can be enlightened by the Eleatic stranger's discussion of sameness and difference in that dialogue.²⁷ Betegh also notes a continuity between his approach and that of Crantor in the early Academy, who is reported to have highlighted the importance of sameness and difference in explaining the soul's cognitive function.

Whilst I do not wish to undermine this 'cognitive' reading of the soul's ingredients, I argue that the selection of these ingredients can *also* ground our understanding of its self-motion, in particular through the inclusion of the natures of Same and Different.²⁸ After the demiurge has apportioned and divided up the soul-mixture, Timaeus describes how he established the structure of the soul (36b6-c7):

ταύτην οὖν τὴν σύστασιν πᾶσαν διπλὴν κατὰ μήκος σχίσας, μέσῃν πρὸς μέσῃν ἐκατέραν ἀλλήλαις οἷον χεῖ προσβαλὼν κατέκαμψεν εἰς ἓν κύκλῳ, συνάψας αὐταῖς τε καὶ ἀλλήλαις ἐν τῷ καταντικρὺ τῆς προσβολῆς, καὶ τῇ κατὰ ταῦτά ἐν ταύτῳ περιανομένη κινήσει πέριξ αὐτὰς ἔλαβεν, καὶ τὸν μὲν ἔξω, τὸν δ' ἐντὸς ἐποιεῖτο τῶν κύκλων. τὴν μὲν οὖν ἔξω φορὰν ἐπεφήμισεν εἶναι τῆς ταύτου φύσεως, τὴν δ' ἐντὸς τῆς θατέρου. τὴν μὲν δὴ ταύτου κατὰ πλευρὰν ἐπὶ δεξιὰ περιήγαγεν, τὴν δὲ θατέρου κατὰ διάμετρον ἐπ' ἀριστερά, κράτος δ' ἔδωκεν τῇ ταύτου καὶ ὁμοίου περιφορᾷ· μίαν γὰρ αὐτὴν ἄσχιτον εἶασεν, τὴν δ' ἐντὸς σχίσας ἐξαχῇ ἑπτὰ κύκλους ἀνίσους κατὰ τὴν τοῦ διπλασίου καὶ τριπλασίου διάστασιν ἐκάστην, οὐσῶν ἐκατέρων τριῶν, κατὰ τάναντία μὲν ἀλλήλοις προσέταξεν ἰέναι τοὺς κύκλους, τάχει δὲ τρεῖς μὲν ὁμοίως, τοὺς δὲ τέτταρας ἀλλήλοις καὶ τοῖς τρισὶν ἀνομοίως, ἐν λόγῳ δὲ φερομένους.

So, having sliced this whole structure twice length-ways, he set one middle in contact with [the] other middle in mutual contact like a letter Chi (X), bending [them] back into one in a circle. [Then], he attached the [middles] to themselves and to each other at the point opposite to their point of contact. Then, he encompassed them [sc. the middles] all-around with the motion which is guided around uniformly in the same

²⁷ Betegh 2021. For two other valuable accounts of the soul's cognition, see Frede 1996 and Corcilius 2018. Cf. also Gerson 2004.

²⁸ In this regard, the following argument offers a partially 'Xenocratean' reading by relating the soul's ingredients to its kinetic function, as a counterpart to Betegh's self-association with Crantor. However, it is not a fully-fledged 'Xenocratean' interpretation, since this would involve identifying the undivided and divided kinds of essence with the One and Multiplicity, which is not a goal I intend to pursue here.

place. Then, he made one of the circles to be outer, the other to be inner. Next he ordained the outer motion to be [that] of the nature of the Same, the inner one [that] of [the nature of] the Different. The one [motion] of the Same he guided around right-wards according to the side, the other [motion] of the Different [he guided around] left-wards according to the diagonal. He gave control to the revolving motion of the Same and Similar. For he allowed it to [be] one, being un-sliced, whereas he sliced the inner motion six times to make seven circles of unequal size corresponding to each division of the double and the triple [interval], of which there were three. [Then] he arranged that the circles go in opposite directions to one another, with three of them [going] at the same speed and the other four [going] at unequal speeds to each other and the [first] three. But they [all] moved in proportion.

The key point I want to derive from this passage is that the demiurge does not appear to generate the soul's motion in an unqualified sense, as if the soul-mixture is in a state of rest beforehand. Rather, Timaeus highlights how God guided the soul's motion to follow a *circular* trajectory by his intelligent handiwork on the mathematically divided mixture.²⁹ For example, after he has turned back the tips of the Chi-shaped (X) stripes to make two circles (☉³⁰), Timaeus says that the demiurge 'encompassed them [sc. the middles, of the two circles] all-around with the motion which is guided around uniformly in the same place'. This shows that, from this moment on, the two circles of the presently structured soul rotate around a fixed central point. Timaeus also says that the one – outer – motion (*phora*) was ordained as 'the nature of the Same' and the other – inner – motion as 'the nature of the Different'. In other words, the two essential motions (*phorai*) of the soul are given the same names as two of its three core ingredients, i.e. Same and Different. Then, in the remainder of the passage, Timaeus shows how the demiurge arranged the soul's motions in a mathematically intelligible way (*en logôi*).³¹ Thus, it appears that the demiurge's distinctive contribution to the soul's motion is to make this motion *circular*, as well as co-ordinated and maximally harmonised in a like-minded way to his intervention on the motions of the primary bodies. Yet the soul's inherent capacity for motion, which is that in which its self-motion consists, can be explained

²⁹ Note the plethora of words with a *peri-* prefix – *têi kata tauta en tautôi periagomenê kinêsei* (36c2-3), *perix autas elaben* (c3), *periêgagen* (c6) and *periphorâi* (d1) – as well as the references to circles (*kukloi*, at 36c4, d2, and d5). On the importance of circularity to the soul's motion, see §4 below.

³⁰ I borrow this image from Taylor 1928: 147.

³¹ The seven circles of the Different in the cosmic soul provide the orbital paths for the seven planetary bodies. See 38c-39d.

by its constitution of Same and Different, which are the two essential motions in the structured soul.

What does it mean to say that Same and Different are themselves responsible for the soul's self-motion? Although any answer to this issue seems destined to be speculative, I suggest that Same and Different can be understood as opposing principles of motion in the soul, which together give rise to self-motion.³² The soul's motion is characterised by Same because all the circles of the soul rotate uniformly around a fixed central point and some of them move at the same speed (cf. *en tautôi periagomenêi kinêsei*, 36c2-3; *homoiôs*, 36d5). But the soul's motion is also characterised by Different because each of the circles move in different orbital paths, in opposing directions and four at different speeds (cf. *anomoiôs*, 36d6). The combination of a principle of uniformity and a principle of differentiation gives rise to *self*-motion, understood as the inherent capacity for motion, since this motion uniquely encompasses elements of both sameness and difference. We can examine the special power of self-motion later, in conjunction with the Athenian stranger's discussion in the *Laws*.

3. The *Phaedrus*

(i) The un-generatedness of soul

I turn now from the *Timaeus* to another dialogue, the *Phaedrus*, and its demonstration of the immortality of soul.³³ Out of all of Plato's arguments for the soul's immortality, the demonstration in the *Phaedrus* is distinguished by its compressed logical structure and its presentation as a long and un-interrupted speech delivered by Socrates to his interlocutor Phaedrus. Here is the demonstration in full (245c2-246a2):

³² Thomas K. Johansen (2004: 138-142, at 139) has intriguingly suggested that Xenocrates might have had in mind *Tim.* 57d-58a in his 'kinetic' interpretation of the soul's ingredients, where Timaeus says that motion only exists in a state of inequality (*anômalotês*) whereas rest requires a state of equality (*homalotês*). I think that this passage might also be relevant, but it is worth acknowledging that the talk is of inequality and equality, not Different and Same as such. Thanks go to Thomas K. Johansen for discussing this with me.

³³ All un-marked Stephanus references in this section are to the *Phaedrus*. Translations are my own but based on Nehamas-Woodruff's translation (in Cooper 1997).

δεῖ οὖν πρῶτον ψυχῆς φύσεως περί θείας τε καὶ ἀνθρωπίνης ἰδόντα πάθη τε καὶ ἔργα τάληθές νοῆσαι· ἀρχὴ δὲ ἀποδείξεως ἦδε.

Ψυχὴ πᾶσα ἀθάνατος. τὸ γὰρ ἀεικίνητον ἀθάνατον· τὸ δ' ἄλλο κινοῦν καὶ ὑπ' ἄλλου κινούμενον, παύλαν ἔχον κινήσεως, παύλαν ἔχει ζωῆς. μόνον δὲ τὸ αὐτὸ κινοῦν, ἅτε οὐκ ἀπολεῖπον ἑαυτό, οὐποτε λήγει κινούμενον, ἀλλὰ καὶ τοῖς ἄλλοις ὅσα κινεῖται τοῦτο πηγὴ καὶ ἀρχὴ κινήσεως.

ἀρχὴ δὲ ἀγέννητον. ἐξ ἀρχῆς γὰρ ἀνάγκη πᾶν τὸ γινόμενον γίνεσθαι, αὐτὴν δὲ μὴδ' ἐξ ἐνός· εἰ γὰρ ἔκ του ἀρχῇ γίνοιτο, οὐκ ἂν ἐξ ἀρχῆς γίνοιτο.

ἐπειδὴ δὲ ἀγέννητόν ἐστιν, καὶ ἀδιάφθορον αὐτὸ ἀνάγκη εἶναι. ἀρχῆς γὰρ δὴ ἀπολομένης οὔτε αὐτὴ ποτε ἔκ του οὔτε ἄλλο ἐξ ἐκείνης γενήσεται, εἴπερ ἐξ ἀρχῆς δεῖ τὰ πάντα γίνεσθαι. οὕτω δὴ κινήσεως μὲν ἀρχὴ τὸ αὐτὸ αὐτὸ κινοῦν. τοῦτο δὲ οὐτ' ἀπόλλυσθαι οὔτε γίνεσθαι δυνατόν, ἢ πάντα τε οὐρανὸν πᾶσάν τε γένεσιν συμπεσοῦσαν στῆναι καὶ μήποτε αὖθις ἔχειν ὅθεν κινήθέντα γενήσεται.

ἀθανάτου δὲ πεφασμένου τοῦ ὑφ' ἑαυτοῦ κινουμένου ψυχῆς οὐσίαν τε καὶ λόγον τοῦτον αὐτόν τις λέγων οὐκ αἰσχυνεῖται. πᾶν γὰρ σῶμα ᾧ μὲν ἔξωθεν τὸ κινεῖσθαι ἄψυχον, ᾧ δὲ ἔνδοθεν αὐτῷ ἐξ αὐτοῦ ἔμψυχον, ὡς ταύτης οὔσης φύσεως ψυχῆς· εἰ δ' ἔστιν τοῦτο οὕτως ἔχον, μὴ ἄλλο τι εἶναι τὸ αὐτὸ ἑαυτὸ κινοῦν ἢ ψυχὴν, ἐξ ἀνάγκης ἀγέννητόν τε καὶ ἀθάνατον ψυχὴ ἂν εἴη. Περὶ μὲν οὖν ἀθανασίας αὐτῆς ἱκανῶς·

So one ought to understand first what's true about [the] nature of soul, both divine and human, by observing its experiences and activities. The starting-point of the demonstration is this:

Soul is all immortal. For that which is always in motion is immortal, whereas that which moves something else and is moved by something else, having a cessation of motion, has [a] cessation of life. Only that which moves itself, insofar as it does not take leave of itself, never ceases to be in motion, but this is [a] well-spring and starting-point of motion for all the other things which are in motion.

[A] starting-point is un-generated. For necessarily anything which comes into being comes into being from [a] starting-point, but it does not come into being from one. For, if [a] starting-point were to come into being from something, it would not be from a starting-point.

Since it is un-generated, it is necessarily also free from utter destruction. For, if [a] starting-point is destroyed, neither will it ever come into being from anything nor will anything else come into being from it, if it ought to be from [a] starting-point that all things come into being. In this way [a] starting-point of motion is that which itself moves itself. This is capable of neither being destroyed nor of coming into being, or the entire heaven and the entirety of becoming, having collapsed into one, will stand still and never again be in a condition from which, having been moved, it will come into being.

Since immortal has been stated as that which is moved by itself, someone who says that this itself is [the] essence and account (or: definition) of soul will not be subject to shame. For any body which is moved externally is without soul, whereas [any body] which is moved internally itself from itself is en-souled, as this is the nature of soul. And if it is the case that there is nothing other than soul which itself moves

itself, from necessity soul would be un-generated and immortal. Let this be satisfactory concerning its immortality.

I have divided the Greek text and translation into several paragraphs in order to help with understanding. Following the careful analysis by Richard Bett, we can summarise its basic structure as follows³⁴:

Premise 1	Soul is the starting-point (<i>archê</i>) of its own motion.
Premise 2	That which is the starting-point of its own motion is immortal.
Conclusion	Therefore, soul is immortal.

As Bett notes, the argument is presented in reverse order. Firstly the conclusion is stated (245c5), then the second premise is established (245c5-e2), then the first premise (245e2-246a1), and finally the conclusion as a whole (246a1-2). Bett also observes that the second premise is established from two separate arguments, which can also be summarised individually:

First argument for Premise 2

Premise 2.1	That which is always in motion is immortal.
Premise 2.2	That which moves itself is always in motion.

Second argument for Premise 2

Premise 2.3	That which is a starting-point of motion is un-generated and free from destruction.
Premise 2.4	That which moves itself is a starting-point of motion for all the other things which are in motion.

Each of these arguments is also presented in reverse order (245c5-7, d1-e2). This inverted manner of presentation hence emerges as a distinctive feature of the argumentation: first,

³⁴ See Bett 1986, with the summaries taken from his p. 3 (note only that Bett translates *archê* as 'source', not 'starting-point'). Other valuable discussions of the argument include Demos 1968, Hankinson 1991, Blyth 1997, Karfik 2004: 221-227 and Long 2019: 46-55. Blyth's analysis also closely relates the *Phaedrus*' demonstration to the following myth, which lies beyond my focus here.

Socrates plainly states a premise which is important to the argument's structure, then he proceeds to account for it by means of a crisp and general explanation.³⁵

I will now analyse each of these premises following the order in which they appear in the demonstration. The first premise (2.1) is the claim that 'that which is always in motion³⁶ is immortal'. This is immediately contrasted with 'that which moves something else and is moved by something else', which, because it has a cessation of motion, also has a cessation of life. Here, it is important to see that Socrates is not opposing things which possess motion with things which do not, but rather he is opposing things which possess *permanent* motion with things which possess *temporary* motion, and he is saying that things which possess temporary motion are both active and passive movers.³⁷ Further, although this point is not made explicit here, that which is always in motion is later to be identified with *soul (psychê)*.³⁸ Accordingly, we may surmise that the implicit reference of that which both moves and is moved by something else is *body (sôma)*, mentioned at 245e4). Hence, in introducing and explaining this opening premise, Socrates is already preparing the contrast between soul, which is immortal because of its permanent motion, and body, which is mortal because its motion is temporary and dependent on something else. In short, both soul and body are presented as having a capacity for motion, but only soul is responsible for its own motion, as opposed to body whose motion comes from an external source.

The premise which appears next in the argument (2.2) is the claim that 'only that which moves itself, insofar as it does not take leave of itself, never ceases to be in motion'. In other words, the only thing which possesses permanent motion is the self-mover. The use of *hate* ('insofar as') in this sentence suggests that the permanent motion of the self-mover is being explained with reference to the fact that the self-mover exceptionally does not 'take leave of itself' (*hate ouk apoleipon heauto*). This explanation can be linked to a later part of the demonstration, in which Socrates says that one will not be ashamed to state that self-motion is the 'essence and account (or: definition) of soul' (*psychês ousian te kai logon*, 245e3). The

³⁵ Note the repeated explanatory *gar* at 245c5, d1, d2, d4 and e4.

³⁶ On reading *aeikinêton* in agreement with the medieval manuscripts instead of *autokinêton* of an Oxyrhynchus papyrus, see Yunis 2011: 137.

³⁷ The distinction between permanent and temporary motion reads as a precursor of Aristotle's distinction between motion *per se* and motion *per accidens* (see *Phys.* 5.1).

³⁸ On the identity of soul in the argument, see §3.2 below.

idea which is common to both passages is that self-motion is an essential or definitional feature of the soul. In the earlier passage, Socrates adds that the self-mover, besides being characterised by permanent motion, is also (*kai*) ‘a well-spring and starting-point of motion for all the other things in motion’. This assertion appears to be derived from the assumption that, firstly, there are other things besides soul which possess motion (i.e. bodies), and, secondly, the motions of bodies are derivative from self-motion which will be assigned to the soul. There is thus an implicit hierarchy of motions envisioned: on the one hand, the self-motion of soul, which is originitive and primary; and, on the other hand, the active and passive motions of bodies, which are in some sense derivative from it.³⁹

The second argument for the second premise begins from the third premise (2.3) that ‘[a] starting-point is un-generated’. As with the first premise (2.1), this one is simply stated bluntly, before an explanation is given. One initial uncertainty is whether Socrates is saying that starting-points *as such* are un-generated or that any starting-point *of motion* is un-generated (supplying the genitive *kinêseôs* from the previous expression *pêgê kai archê kinêseôs*, at 245c9). I take it that the re-appearance of the genitive *kinêseôs* in the conclusion of this argument – where it appears within the phrase *kinêseôs men archê*, at 245d7 – shows that the second option is correct. This is helpful to clarify because it highlights how the entire intervening argument for the un-generatedness and freedom from destruction of the starting-point (245d1-e2) is specifically focussed on the role of the starting-point as an ultimate source of *motion*. The argument itself falls into two parts, which demonstrate respectively the status of the starting-point as un-generated (245d1-3) and its status as free from destruction (245d3-e2).⁴⁰ In the first part, Socrates explains the starting-point’s un-generatedness by reasoning that ‘necessarily anything which comes into being comes into being from [a] starting-point, but it does not come into being from one. For, if [a] starting-point were to come into being

³⁹ On the same hierarchy of psychic self-motion and bodily other-motion in the *Timaeus* and the *Laws*, see §5 below.

⁴⁰ In translating *adiaphthoron* as ‘free from (utter) destruction’, rather than ‘indestructible’, I am presuming that the modal force of Plato’s alpha-privative adjectives is un-altered from their force in other works, such as the *Phaedo* and the *Timaeus* (on which see Chapter 1). This presumption might seem threatened in the *Phaedrus* by Socrates’ assertion later that the starting-point of motion (which will ultimately be identified with soul) is ‘capable (*dunaton*) of neither being destroyed nor of coming into being’ (245d7-8). However, I take it that the force of *dunatos* is modally weaker than the force of ability and possibility in English. The soul is unable (i.e. does not have the power or capacity) to destroy the soul (how would it? Its essential power is self-motion), but this does not exclude its destructibility (although not its destruction) by God.

from something, it would not be from [a] starting-point⁴¹. This passage evidently shows that it is necessary for a starting-point to be un-generated. But what does it mean to be un-generated (*agenêton*)? The fact that the entire argument is centred on accounting for the origination of *motion* shows that generation (or coming into being, *genesis*) is being understood as a kind of motion (*kinêsis*).⁴² For, if generation were not a kind of motion, Socrates would not be able to conclude from the observation that all things come into being from a starting-point that the starting-point of motion is that which it moves, as he in fact does at the end of the first argument (245d6-7). Thus, the starting-point's freedom from generation – which is later extended to the soul (246a1) – implies freedom from generation understood as a kind of motion. I will come back to this consideration and its broader significance near the end of the chapter.

In the second part of this argument, Socrates says that, since a starting-point is un-generated, it is also necessarily free from destruction, '[f]or, if a starting-point is destroyed, neither will it ever come into being from anything nor will anything else come into being from it, if it ought to be from a starting-point that all things come into being'. The reasoning parallels the previous reasoning concerning the starting-point's generation. In both cases the same outcome follows: not only will the starting-point cease to exist, but so will the totality of things whose existence is assumed to be dependent on it. Thus, the everlastingness of the starting-point – or its joint freedom from generation and destruction – is understood to guarantee the generation of all other things in turn. Then Socrates concludes the second argument that 'in this way a starting-point of motion is that which itself moves itself'. This completes the presentation of the fourth premise (2.4), which is the claim that 'that which moves itself is a starting-point of motion for all the other things which are in motion'. Finally, Socrates imagines an alternative scenario in which the entire heavens and all generation⁴³, 'having collapsed into one, will stand still and never again be in a condition from which, having been moved, it will come into being'. This striking image adds the detail that the self-mover ensures not only motion throughout the natural world but also plurality, in opposition to the state of being one and at rest if the starting-point did not exist.

⁴¹ On reading *ex archês* in the apodosis instead of the common emendation *eti archê*, see Yunis 2011: 137. The point, however, does not affect interpretation.

⁴² So also Bett 1986: 9, who writes that 'the argument requires that we think of γένεσις as a species of κίνησις'.

⁴³ On reading *genesin* instead of *gên eis hen*, see Bett 1986: 8 and Karfik 2004: 222.

In the last part of the demonstration, Socrates connects his preceding discussion of the permanency of the self-mover and the un-generatedness and freedom from destruction of the starting-point with the soul. To begin with, he says that, ‘since immortal has been stated as that which is moved by itself, someone who says that this itself is both [the] essence and account of soul will not be subject to shame’. Here, I take the referent of ‘this itself’ (*touton auton*) to be the notion contained in the previous genitive absolute construction, i.e. ‘self-motion’ rather than ‘the self-mover’. Accordingly, Socrates is stating in the *Phaedrus* that self-motion is both the essence (*ousia*) and account (or definition, *logos*) of soul.⁴⁴ He then explains this by observing that, whereas any body which is moved from without is without soul (*apsychos*), any body which is moved from within, itself from itself, is en-souled (*empsychos*). Here, it is important to recognise that the contrast is not drawn between the soul and the body, but between bodies which lack an inhering soul (e.g. stones) and bodies which have a soul inside them (e.g. the bodies of living beings). Motion in the case of soulless bodies requires an external mover, whereas motion in the case of en-souled bodies is internally sourced, *from* itself (*ex hautou*) but not *by* itself (*hupo heautou*). This again shows that bodies have a capacity for active and passive motion, but this capacity is derivative from the motion of soul. At the end of this explanation Socrates glosses that this is because ‘this is the nature of soul’ (*tautês ousês physeôs psychês*). As previously, I take the ‘this’ to look to the idea which underpins the distinction between en-souled and soulless bodily motion, i.e. ‘self-motion’ or the possession of it (rather than ‘the self-mover’ as such).⁴⁵ To be a self-mover thus belongs to the nature of soul. Then Socrates affirms that, if there is nothing other than soul which itself moves itself, ‘from necessity soul would be un-generated and immortal’. The conclusion that soul is un-generated (*agenêton*) as well as immortal (*athanaton*) marks a difference from the opening statement of the argument, in which soul was (only) said to be immortal (245c5); clearly this inference has been drawn from the preceding discussion of the starting-point’s un-generatedness and freedom from destruction. Thus, the un-generated nature of soul is based on the fact that the soul is essentially self-moving and the self-mover is regarded as the starting-point of motion throughout the natural world. Interestingly, Socrates never actually

⁴⁴ On the relationship of this statement to the *Laws*, see §4 below.

⁴⁵ Both here and in the previous instance of ‘this’ (*touton*) the demonstrative pronoun has been ‘attracted’ into the gender of the predicate noun to which it refers (*logon* and *physeôs*, respectively). See Smyth §1239 and compare Chapter 3, n. 19 above.

says that soul is a starting-point of motion, but this is a necessary assumption in the argument. This point will again be helpful to bear in mind when we compare the *Phaedrus*' demonstration to the soul's relationship to bodily motion in the *Timaeus* and the *Laws*.

(ii) The identity of soul

I now switch our attention to another debated aspect of the *Phaedrus*' demonstration of the immortality of soul, namely the question of what is meant by 'soul' (*psychê*). The word *psychê* appears five times in the course of the argument, on each occasion without the definite article (245c5, e3, e6, 246a1 *bis*). The first appearance of the term is also the most controversial, in which Socrates states his conclusion that 'soul is all immortal' (*psychê pasa athanatos*, 245c5). The problem is that this expression seems to admit being taken in a number of ways. Some commentators translate Socrates' opening words as 'every soul is immortal', a rendition which seems to suggest that the term 'soul' refers to an individual soul, each one of which is immortal.⁴⁶ Other commentators have understood the expression to mean 'all soul is immortal', in which 'soul' might be taken to refer not to an individual soul (e.g. your soul or my soul) but to a kind of 'soul-stuff' out of which all individual souls are constructed.⁴⁷ Another way of construing the translation 'all soul is immortal' is to understand it as meaning '[the] entire soul is immortal', i.e. not merely the immortal or rational soul (to borrow the terminology of the *Republic* and the *Timaeus*, respectively) but also its spirited and appetitive parts (or what the *Timaeus* calls 'the mortal kind of soul', cf. *Tim.* 69c). This reading more naturally comprehends 'soul' in an individualistic sense, but might also be fitted with the notion of an underlying 'soul-stuff', so that Socrates is saying that what is immortal is the entire psychic substance out of which both the intellectual and non-intellectual parts of the individual soul are composed. Which of these senses (or any other) does Socrates have in mind when he demonstrates the immortality of soul?

⁴⁶ See Demos 1968: 134-135, Hankinson 1991: 3-6 and Nehamas-Woodruff (in Cooper 1997).

⁴⁷ See Hackforth 1952: 63-64, Bett 1986: 12-15, Blyth 1997: 186-187 and Yunis 2011: 136-137. Bett develops the notion of a 'soul-stuff'.

I argue that soul in the demonstration is being understood in a generic sense to refer to all individual souls viewed as members of a group or class.⁴⁸ I also tend to agree with the view that the scope of soul is limited to what is elsewhere described as the immortal or rational part of the soul, although it may also be that the issue of the soul's internal structure at this point is intended to remain open and un-determined.⁴⁹ Emphasis is given at various points to the generality of soul within and after the demonstration. For example, immediately before the demonstration Socrates says that 'one ought to understand first what's true about [the] nature of soul, *both divine and human*, by observing its experiences and activities' (245c2-4). This shows that the following proof of soul's immortality will apply to both divine and human souls, whose active and passive aspects are being analysed in a general sense. Also, after the reference to *psychê pasa athanatos* and the demonstration, Socrates states that '*all soul (psychê pasa)* supervises all that is without soul and roams around all heaven, coming to be at different times in different forms' (246b6-7). This suggests that soul is generally the caretaker of body and that this relation manifests itself in individual instances throughout the cosmos. The force of *pasa* in the opening expression *psychê pasa athanatos* (245c5) can also be understood in agreement with this generic conception of soul to encompass the senses of *both* 'every' soul *and* 'all' soul (in which 'all' soul denotes soul in an abstracted sense). Thus, the demonstration applies to all individual souls, but it also regards soul in a generic and somewhat impersonalised sense (such as is implied by the notion of 'soul-stuff').

4. The *Laws*

(i) The primary generation of soul

⁴⁸ This generic sense of soul seems to match with the *Phaedo*, in which soul is also referred to throughout the final argument of soul's immortality without the definite article (*Phd.* 105c11, d3, d10, e4, e6; 106b2, c10, e2, e9). On the generic aspect of *to athanaton* at *Phd.* 106b1, see Chapter 1.2.2 above.

⁴⁹ Note the instruction to discuss the soul's form (*idea*) only after the satisfactory demonstration of its immortality (246a). Even then, since it would require a long and divine narration to discuss what kind of thing the soul is, Socrates proposes an image to discuss what it is *like*, which is provided by the following myth (246a ff.).

From the *Phaedrus* I advance to a third dialogue, the *Laws*, and its demonstration of soul's priority to body which features in a discussion centred on legislating against impiety in Book 10.⁵⁰ The discussion is led by an Athenian stranger and involves two other interlocutors, the Cretan Cleinias and the Spartan Megillus. The demonstration of soul's priority of body is motivated by the aim of persuading a group of contemporary atheistic thinkers of the existence of the gods.⁵¹ After introducing the legislative objectives of the conversation, the stranger presents the atheists' views on natural philosophy. According to them, all things which come into being do so either by nature (*phusis*), craft (*technê*), or chance (*tuchê*) (888e). Specifically, whereas the primary bodies of fire, air, water and earth are entirely the result of nature and chance, craft is a later by-product of them which plays no role in the cosmos' generation (889a-d). The atheists also hold that political government and law-making are largely derived from craft and hardly at all from nature, as a result of which the gods are also products of craft and laws which differ widely from one culture to another (889d-890a). Conversely, as we will examine in a moment, the Athenian stranger holds that government, law-making and the gods are all closely associated with nature, even though this does not exclude their *also* being associated with craft. After the Athenian stranger and Cleinias consider how the legislator ought to react to these views, the stranger outlines what his argument against the atheists will be (891e4-892c8):

ΑΘ. Λέγοιμ' ἄν, ὥς ἔοικεν, ἤδη σχεδὸν οὐκ εἰωθότα λόγον τινὰ τόνδε. ὁ πρῶτον γενέσεως καὶ φθορᾶς αἴτιον ἀπάντων, τοῦτο οὐ πρῶτον ἀλλὰ ὕστερον ἀπεφάνησαντο εἶναι γεγονὸς οἱ τὴν τῶν ἀσεβῶν ψυχὴν ἀπεργασάμενοι λόγοι, ὁ δὲ ὕστερον, πρότερον· ὅθεν ἡμαρτήκασι περὶ θεῶν τῆς ὄντως οὐσίας.

ΚΛ. Οὕπω μανθάνω.

ΑΘ. Ψυχὴν, ὧ ἑταῖρε, ἡγνοηκέναι κινδυνεύουσι μὲν ὀλίγου σύμπαντες οἷόν τε ὄν τυγχάνει καὶ δύναμιν ἣν ἔχει, τῶν τε ἄλλων αὐτῆς πέρι καὶ δὴ καὶ γενέσεως, ὥς ἐν πρώτοις ἐστί, σωμάτων ἔμπροσθεν πάντων γενομένη, καὶ μεταβολῆς τε αὐτῶν καὶ μετακοσμήσεως ἀπάσης ἄρχει παντὸς μᾶλλον· εἰ δὲ ἔστιν ταῦτα οὕτως, ἄρ' οὐκ ἐξ ἀνάγκης τὰ ψυχῆς συγγενῇ πρότερα ἂν εἴη γεγονότα τῶν σώματι προσηκόντων, οὔσης γ' αὐτῆς πρεσβυτέρας ἢ σώματος;

ΚΛ. Ἀνάγκη.

⁵⁰ All un-marked Stephanus references in this section are to the *Laws*. Translations are my own but based on those of Saunders (in Cooper 1997), Mayhew 2008 and Schöpsdau 2011.

⁵¹ On the meaning of 'atheism' in this context and discussion of the thinkers in mind, see Sedley 2013.

ΑΘ. Δόξα δὴ καὶ ἐπιμέλεια καὶ νοῦς καὶ τέχνη καὶ νόμος σκληρῶν καὶ μαλακῶν καὶ βαρέων καὶ κούφων πρότερα ἂν εἴη· καὶ δὴ καὶ τὰ μεγάλα καὶ πρῶτα ἔργα καὶ πράξεις τέχνης ἂν γίγνοιτο, ὄντα ἐν πρώτοις, τὰ δὲ φύσει καὶ φύσις, ἣν οὐκ ὀρθῶς ἐπονομάζουσιν αὐτὸ τοῦτο, ὕστερα καὶ ἀρχόμενα ἂν ἐκ τέχνης εἴη καὶ νοῦ.

ΚΛ. Πῶς οὐκ ὀρθῶς;

ΑΘ. Φύσιν βούλονται λέγειν γένεσιν τὴν περὶ τὰ πρῶτα· εἰ δὲ φανήσεται ψυχὴ πρῶτον, οὐ πῦρ οὐδὲ ἀήρ, ψυχὴ δ' ἐν πρώτοις γεγεννημένη, σχεδὸν ὀρθότατα λέγοιτ' ἂν εἶναι διαφερόντως φύσει. ταῦτ' ἔσθ' οὕτως ἔχοντα, ἂν ψυχὴν τις ἐπιδείξη πρεσβυτέραν οὖσαν σώματος, ἄλλως δὲ οὐδαμῶς.

ΚΛ. Ἀληθέστατα λέγεις.

'I should now give, as it seems, the following rather unusual kind of argument. That which is the first [thing] responsible for [the] generation and destruction of all things, this is declared by those accounts which effect the soul of impious [men] to be not *first* but *later* generated. That which is *later*, [this is declared to be] *prior*. From this they have erred concerning the actual essence of [the] gods.'

'I don't yet understand.'

'Soul, my friend, [is what] almost everyone runs the risk of being ignorant about, and what kind of thing it happens to be and [the] power it has, and the other things about it and in particular [its] generation. For it is among the *first* things, coming into being before all bodies, and it rules over their transformation and all their orderly change more than anything. If these things are so, wouldn't the things related to soul from necessity have come into being prior to the things which belong to body, since it is at any rate older than body?'

'Necessarily.'

'Then judgment, supervision, intelligence, craft and law would be prior to roughness, softness, heaviness and insubstantiality. In particular, the great and primary works and actions of craft would come into being [earlier], being among the first things, whereas the things [that are] by nature and nature, which they don't name as this thing, would be later and ruled over from craft and intelligence.'

'How is ["nature" named] incorrectly?'

'By "nature" they want to mean generation concerning the first things. But, if soul will be declared as first, not fire or air, and soul has been generated among the first things, it would rather most correctly be said to be distinctively by nature. This is the way things are, if someone will show that soul is older than body, and in no way otherwise.'

'You speak most truly.'

In this passage the Athenian stranger explains how his opinion differs from those of the atheistic natural philosophers. Firstly and most notably, the stranger proposes an inversion to the order of generation which is presumed in the atheists' natural philosophy.⁵² The atheists hold that the primary bodies of fire, air, water and earth, which they identify with 'nature'

⁵² On the significance of this inversion for the order of presentation in the *Timaeus*, see §5 below.

(*phusis*), are generated first, whereas soul is constructed out of them at a later stage of the cosmogonic process (cf. 891c1-4). Conversely, the stranger will argue that soul is among the primary things (*en prôtois*) and that it rules over all bodily transformations, which only come about because of it. Hence, in the stranger's view, soul is generated *first*, whereas the primary bodies – and so body itself – are generated *later*.

Secondly, as a result of this, the stranger holds that the things which are related to soul (*ta psychês suggenê*) will necessarily be generated prior to the things which belong to body (*ta sômati prosêkonta*). Examples of the things which relate to soul are judgment, supervision, craft, intelligence and law, whereas examples of the things which belong to body are the opposite pairs of roughness/softness and heaviness/insubstantiality. Robert Mayhew has criticised this inference as an example of the fallacy of division, whereby what is true for the whole or group of X is fallaciously inferred to be true for a part or member of X.⁵³ However, the examples given seem to be necessary concomitants of soul and body, respectively. Consequently, I take it that the stranger is not committed to the view that the things related to soul precede the things belonging to body *in every case*, as Mayhew thinks, but only that they do so when soul and body are viewed in an abstracted or generic sense.⁵⁴ Accordingly, if soul is prior to body, so too craft (*technê*) will count among the primary existents, in opposition to body and the things belonging to body.

Thirdly, a further consequence of the stranger's argument will be that the identity of nature and its relationship to craft will be conceived differently from its understanding in the atheists' view. According to them, 'nature' refers to the primary bodies of fire, air, water and earth, because they interpret the term to mean 'generation concerning the primary things' (*genesin tên peri ta prôta*). However, if soul is prior to body, the stranger maintains that it would be most correct to describe the *soul* as 'distinctively by nature' (*diapherontôs phusei*). This suggests that soul will come to occupy the position which is presently occupied by the primary bodies. In other words, the stranger agrees with the scope of the term 'nature' to denote the primary objects of generation, but he disagrees with its reference to the primary bodies instead of soul. This has consequences for the understanding of the relation between nature and craft. In the atheists' view, craft is separate from nature (and chance) and regarded

⁵³ See 2008: 130-131.

⁵⁴ Similarly in the *Timaeus*, the priority of soul to body does not apply in every case. See §2.1 above.

as a later by-product of them. However, on the stranger's view craft is related to soul, and soul, if it is generated first, will be that which is properly identified with 'nature'. So, whereas for the atheists craft is posterior to nature, for the stranger craft and nature are jointly primary and play a co-operative role in natural generation.

The stranger's outline of the differences between his and the atheists' views is followed by his demonstration of soul's priority to body itself (892d-896c). Since my main interest lies with the conclusion of this demonstration, I will pass over the preceding discussion quickly. The discussion sees the stranger develop a list of ten motions (*kinêseis*), of which the primary and most senior kind of motion, which is the starting-point of all the other kinds, is agreed to be self-motion (893b-894e, 894e-895b). Then, he gets Cleinias to agree to the fact that anything which is self-moving is alive and that this is no difference from its being en-souled (895c). Now, after having introduced a distinction between the *essence* (*ousia*), the *account* of the essence (*tês ousias logos*), and the *name* (*onoma*) which constitute the three elements of any thing, the stranger advances to the conclusion itself (895e10-896c4):

ΑΘ. Ὡς δὴ ψυχὴ τοῦνομα, τίς τούτου λόγος; ἔχομεν ἄλλον πλὴν τὸν νυνδὴ ῥηθέντα, τὴν δυναμένην αὐτὴν αὐτὴν κινεῖν κίνησιν;

ΚΛ. Τὸ ἐαυτὸ κινεῖν φης λόγον ἔχειν τὴν αὐτὴν οὐσίαν, ἥνπερ τοῦνομα ὃ δὴ πάντες ψυχὴν προσαγορεύομεν;

ΑΘ. Φημί γε· εἰ δ' ἔστι τοῦτο οὕτως ἔχον, ἄρα ἔτι ποθοῦμεν μὴ ἱκανῶς δεδεῖχθαι ψυχὴν ταύτην ὃν καὶ τὴν πρώτην γένεσιν καὶ κίνησιν τῶν τε ὄντων καὶ γεγονότων καὶ ἐσομένων καὶ πάντων αὖ τῶν ἐναντίων τούτοις, ἐπειδὴ γε ἀνεφάνη μεταβολῆς τε καὶ κινήσεως ἀπάσης αἰτία ἅπασιν;

ΚΛ. Οὐκ, ἀλλὰ ἱκανώτατα δέδεικται ψυχὴ τῶν πάντων πρεσβυτάτη, γενομένη γε ἀρχὴ κινήσεως.

ΑΘ. Ἄρ' οὖν οὐχ ἢ δι' ἕτερον ἐν ἄλλῳ γιγνομένη κίνησις, αὐτὸ δὲ ἐν αὐτῷ μηδέποτε παρέχουσα κινεῖσθαι κίνησις, αὐτὸ δὲ ἐν αὐτῷ μηδέποτε παρέχουσα κινεῖσθαι μηδέν, δευτέρα τε, καὶ ὁπόσων ἀριθμῶν βούλοιτο ἂν τις ἀριθμεῖν αὐτὴν πολλοστήν, τοσούτων, σώματος οὔσα ὄντως ἀψύχου μεταβολή;

ΚΛ. Ὅρθῳς.

ΑΘ. Ὅρθῳς ἄρα καὶ κυρίως ἀληθέστατά τε καὶ τελεώτατα εἰρηκότερες ἂν εἴμεν ψυχὴν μὲν προτέραν γεγονέναι σώματος ἡμῖν, σῶμα δὲ δευτέρον τε καὶ ὕστερον, ψυχῆς ἀρχούσης, ἀρχόμενον κατὰ φύσιν.

ΚΛ. Ἀληθέστατα μὲν οὔν.

'Then, if "soul" is the name, what is the account of this [thing]? We don't have any other [account] than the one mentioned just now, namely "the motion which is itself capable of moving itself".'

‘Do you mean that the account “the moving [of] itself” has the same essence as that which we all refer to by the name “soul”?’

‘Yes, I mean that. And if this is the case, don’t you no longer desire for it to be demonstrated adequately that soul and the first generation and motion of the things which are and have been and will be, and all the opposites to this, are the same thing, since soul was revealed to be responsible for all transformation and motion in all things?’

‘No, it’s been demonstrated most adequately that soul is the oldest of all things, having come to be, at any rate, a starting-point of motion.’

‘So then, won’t the motion which comes to be in one thing because of another, but which itself never furnishes anything to move in itself, be second, or by however many rounds one would wish to count it, being a transformation of body which is in reality without soul?’

‘Correct.’

‘So we have said correctly, properly and in a true and complete way that soul has come into being prior to body, whereas body is second and later, and that soul is ruler, whereas body is naturally ruled.’

‘That’s indeed absolutely true.’

We need to take care here in applying the preceding distinction between the essence, the account and the name of a thing to the target case of the soul. Firstly, the stranger states that, on the basis of what has just been said, the *account* of that to which we give the name ‘soul’ is ‘the motion which is itself capable of moving itself’. In other words, the *account* of soul is self-motion. Secondly, the stranger agrees to Cleinias’ response that the *account* ‘the moving [of] itself’ has the same *essence* as that to which everyone gives the *name* ‘soul’. This suggests that both the *account* ‘self-motion’ and the *name* ‘soul’ (that is, the Greek word *psychê*) have the same *essence* as their target. But what does the *essence* refer to? Although this point is not absolutely clear, I take it that the *essence* denotes the entity which is soul itself, understood as distinct from both its definition and the term which is used to refer to it.⁵⁵ This also seems to agree with the stranger’s following comment that, if this is so, it will have been demonstrated that ‘soul (*psychên*) and the first generation and motion of the things which are and have been and will be, and all the opposites to this, are the same thing (*taúton*), since soul was revealed to be responsible for all transformation and motion in all things’. Accordingly, the stranger is saying that soul’s generation will coincide with the generation of self-motion,

⁵⁵ So also Mayhew 2008: 125-128 and Schöpsdau 2011: 411. Some commentators (e.g. Marinescu 2021: 100) write that soul *is* self-motion in the *Laws*, in opposition to the *Timaeus* and the *Phaedrus* where it is a self-mover (note, however, Cherniss 1944: 429, quoted in n. 15 above, who writes that the soul is self-motion in the *Timaeus*), but this overlooks the distinction between the *ousia*, the *logos* and the *onoma*.

even though the soul *is* not self-motion but is (only) defined by self-motion. What the soul *is* (that is, what is the *essence* of soul) is presumably that which moves itself, i.e. the self-mover or self-moving thing. Then, Cleinias replies in agreement that soul has been demonstrated to be the oldest of all things, ‘having come to be, at any rate, the starting-point of motion’. This shows that soul is now understood to be the starting-point of motion insofar as it is defined by self-motion. Conversely, the motion which occurs because of an external source but which does not cause motion in anything in itself is secondary and a transformation of body without soul. From this the stranger concludes that soul is generated prior to body and rules over body, whereas body is naturally ruled.

The *Laws*’ presentation of soul’s relationship to self-motion marks a subtle conceptual upgrade on its presentation in the *Phaedrus*. In the *Phaedrus*, as I interpreted the text above, Socrates concludes that self-motion is the *essence* and *account* (as well as the *nature*) of soul (*Phdr.* 245e2-4, e4-6). However, in the *Laws* the Athenian stranger only states that self-motion is the *account* of soul, whereas he reserves the term *essence* to denote the entity of soul itself.⁵⁶ I do not think that this difference amounts to a change in Plato’s understanding of the nature of the soul, but only reflects the more nuanced metaphysical division in the *Laws* of apprehending three aspects in every thing (cf. 895d1-2). In both works the soul itself is understood to be the self-mover. Also in the *Timaeus* the soul is self-moving but it is not identified with self-motion. Hence, all three dialogues endorse self-motion as the essential characteristic of soul.

(ii) The intelligent motion of soul

After demonstrating the prior generation of soul to body, the Athenian stranger proceeds to explain that soul will be generally responsible for the processes within the cosmos and that a good soul will be in charge of the circular motions of the heavenly bodies (896d-899b). From this he infers that the soul or souls which control the cosmos are gods, and so completes his

⁵⁶ The term *ousia* in the *Phaedrus*’ demonstration seems to denote not the entity of soul itself (which would result in a tautology in the phrase *psychês ousian*, *Phdr.* 245e3) but rather its essential nature in a way which likens it to the sense of *logos* (note the use of *te kai* at *Phdr.* 245e3).

first argument against the atheists that the gods exist (899b-d). In order to determine whether an intelligent and virtuous soul is in charge of the heavenly motions or its opposite, the stranger poses the following intriguing question: ‘So, what nature does the motion of intelligence have?’ (897d3). This presumption that intelligence (*nous*) is itself a kind of motion is likely to strike us as peculiar, but it appears to be a constitutive feature of Plato’s view.⁵⁷ Then he suggests that they should examine an image (*eikôn*) of the object of investigation, by identifying which of the ten previously listed motions resembles intelligence (897d-e).⁵⁸ Next, the stranger states that the motion which is most kindred and similar to the revolution of intelligence is *circular* motion, or the motion which takes place in a single place around a central point (898a). This is because both intelligence and circular motion are distinguished by uniformity in a number of different respects (898a-b). From this he concludes that the heavens must be controlled by an intelligent and virtuous soul because their motions are agreed to be orderly and uniform (898c-d). I want to suggest that the stranger’s argumentation provides further support for my interpretation of the soul’s self-motion in the *Timaeus* earlier, according to which self-motion as such is owed to the soul’s constitution from Same and Different but in which the demiurge also ‘generates’ the soul’s motion by guiding it to move in a naturally circular way. In his summary of God’s constructive act, Timaeus says that God fashioned intelligence (*nous*) to be in soul and soul to be in body in his construction of the universe (30b). However, significantly when it comes to his account of the cosmic soul’s construction, Timaeus does not actually explain *how* intelligence was fashioned to be in soul. He only states that intelligence and scientific understanding (*epistêmê*) are the two things which arise when the soul formulates an account which is concerned with an object of reason (37c). Yet, if the motion of intelligence is an image of circular motion, it becomes easier to comprehend how the demiurge’s imposition of circularity on the soul’s (self-)motion corresponds to his fashioning of intelligence. The *Laws* thus helps to clarify a complex detail in the *Timaeus* concerning intelligence and psychic self-motion.

5. The three contexts, re-considered

⁵⁷ For discussion, see Lee 1976.

⁵⁸ On the choice to pursue their investigation by means of an image, cf. *Phd.* 99d-100a and *Tim.* 29b-d.

In the preceding discussion, I have argued that the *Timaeus*, the *Phaedrus* and the *Laws* all endorse the soul's status as a self-mover and regard the soul's motion as primary and ruling over the motions of the body. However, various uncertainties remain concerning the compatibilism of the three works with regard to their presentation of the soul's generation, its priority to body and the scope of its status as a starting-point of motion. It is the task of this section to clarify these uncertainties. Let us begin by returning to the puzzle of the *Timaeus'* presentation of the construction of the cosmos' body *before* that of the cosmos' soul (*Tim.* 34b-c). As I argued earlier, Timaeus' explanation of the inversion of the presented and actual orders of construction in the case of the cosmos' body and soul seems to be almost deliberately unconvincing, compelling us as readers of the *Timaeus* not to question the sequential assumption of the cosmos' generation at all but to reflect more deeply on the nature of the priority between the soul and the body. Here, I suggest that a more substantive explanation of the presented order can be provided via the Athenian stranger's argument for the soul's priority to body in the *Laws*.⁵⁹ Both the *Timaeus* and the *Laws* describe the soul as generated and maintain that soul is prior to and older than body. Moreover, the *Laws* introduces the argument for soul's priority to body by pitting it against the view of a contemporary group of atheist natural philosophers, who hold that the cosmos is generated solely by the primary bodies of fire, air, water and earth (which they regard as 'nature') and their chance interactions, whereas soul is a later by-product of them. The *Laws* sheds additional light on the *Timaeus'* *hysteron proteron* construction by revealing the error of presuming body to be prior to soul as an atheistic or materialistic point of view. The mistake of regarding body as prior to soul in the *Timaeus* is presumably that of the majority of natural philosophers, since they maintain that the primary bodies are responsible, as opposed to co-responsible, for the general processes which go on within the cosmos (*Tim.* 46c-e).⁶⁰ Hence, the *Laws* takes up the *Timaeus'* view on the priority of soul to body and re-casts it in a more overtly theistic (or anti-atheistic) light.

⁵⁹ Thomas K. Johansen has suggested to me that the inverted order in the *Timaeus* might also be explained with reference to Aristotle's distinction between what is prior in nature and what is prior in relation to us (*Post. An.* 1.2, 71b-72a). The body's construction is given first because it is bodily, visible and tangible (cf. *Tim.* 31b4-8).

⁶⁰ Also in the *Laws* the atheists adhere to the principle that the things which are causally primary in the cosmos' generation are earlier-born.

I turn now to the apparent contradiction between the soul's generated status in the *Timaeus* and the *Laws* and its description as *un-generated* in the *Phaedrus*.⁶¹ Earlier I argued that, according to the demonstration of soul's immortality in the *Phaedrus*, the un-generatedness of the starting-point – and so the un-generatedness of soul – was derived from the assumption that generation (*genesis*) itself is understood as a kind of motion (*kinesis*). For, if generation were not a kind of motion, Socrates would not be able to conclude that the starting-point *of motion* is that which moves (and is able to move) itself, which is what is ultimately identified with soul. Now, within the demonstration of soul's priority to body in the *Laws*, the Athenian stranger formulates a list of ten kinds of motions, one of which is the motion of generation (*genesis*) (*Laws* 894a).⁶² This motion is one of the eight motions which is stated initially, before the stranger introduces self-motion and other-motion as two further kinds of motion and re-classifies self-motion as the primary and ruling kind of motion. This shows that the motion of generation is a kind of motion which is undergone by *bodies*, as opposed to soul which exclusively possesses self-motion. In other words, the *Laws'* account of the ten types of motions describes a kind of generation (*genesis*) which does not apply to the soul. I argue that, in the *Phaedrus*, the description of soul as *un-generated* implies no more than freedom from generation understood as a kind of motion, which is the kind of generation that is undergone by bodies. The soul's un-generatedness is thus not meant in an unqualified sense. This allows the *Phaedrus'* understanding of soul's generation to be read coherently with the *Timaeus* and the *Laws*, which is just what we should expect in view of their common endorsement of the soul's self-motion.

One consequence of this argument is that the soul's generation in the *Timaeus* should not be understood as a kind of (bodily) motion (*kinêsis*). How can we make sense of this idea? I argue that the soul's generation in the *Timaeus*, as exhibited by the case of the cosmos' soul, does not itself constitute a kind of motion, but it does result in the production of *self-motion*, which is prior to and ruling over the bodily motions in the natural world. Self-motion is thus the first kind of motion to arise when God undertook to construct the cosmos. This can also

⁶¹ I owe the initial impetus for this paragraph to an inspiring suggestion made in a footnote by Rareș Ilie Marinescu (see Marinescu 2021: 105 n. 29). Thanks go to Rareș for reading a previous version of this chapter and discussing its ideas with me.

⁶² The *Laws'* account of generation is initially puzzling and has given rise to various interpretations. For discussion, see Chapter 6.4 below.

help us to clarify another debated issue, namely whether the description of the soul as a starting-point of motion (*archê kinêseôs*), which is implied in the *Phaedrus* and stated explicitly in the *Laws*, also applies to the soul in the *Timaeus*. One influential way of harmonising the three contexts on this point is to restrict the soul's status as a starting-point of motion to the *cosmic* state of affairs, in opposition to the pre-cosmic state of affairs, in which motion occurs among the raw materials not because of a disorderly soul but because of their inherent natures from necessity.⁶³ I agree with this approach, and think that it is confirmed by the primacy of soul's generation, which shows that self-motion comes into being before the various kinds of motion which are possessed by bodies. The *Timaeus'* sequence of generation thus shows how psychic motion is prior and ruling of bodily motion, as it was also implied in the *Phaedrus'* demonstration and made explicit in the *Laws*.

Another relevant passage for understanding the relationship between the cosmic soul's self-motion and the motion in the cosmos as a whole comes from the *Timaeus'* description of the cosmic soul's life (*Tim.* 36e3-5):

...αὐτὴ ἐν αὐτῇ στρεφομένη, θεῖαν ἀρχὴν ἤρξατο ἀπαύστου καὶ ἔμφρονος βίου πρὸς τὸν σύμπαντα χρόνον

... it [sc. the cosmos' soul], turning itself within itself, began a divine beginning of unceasing and rational life for the entirety of time.

The two features of this passage I want to pick out are that the soul's life is described as 'unceasing' and that it is said to last throughout *all* time, even though time itself has not yet come into being. Moreover, as I noted above, the construction of time must postdate the construction of the cosmos' soul and its body, since time involves the placement of the seven planetary bodies in the circular orbits of the cosmos' soul and so within the cosmic organism itself. I argue that this passage subtly indicates that the soul, no less than the cosmos, is in existence for *all* time and is thus everlasting in both temporal directions, even though it is also generated by God. This 'proto-sempiternalist' understanding of the soul's existence stands in

⁶³ This argument was developed by Vlastos (1939: 390-399) and has won many followers. On necessity itself as pre-existent in the pre-cosmos, see Chapter 3.3. above.

full agreement with the *Phaedrus*, in which Socrates emphasises the permanent motion of the self-mover and implies that the self-mover has an un-ceasing life (cf. *Phdr.* 245c-d).⁶⁴ The *Laws* also presumes that the soul is generated, but, as the *Timaeus* shows, this does not preclude its also existing for all time. The notion of priority and posteriority which is operative in the *Laws* is also presumably continuous with the *Timaeus*, and so as such comprises *both* a temporal (or sequential) aspect *and* an explanatory component concerning natural generation.

Finally, although the focus of this chapter has been on the generated nature of soul and its priority to body, we may conclude by drawing some reflections on what, according to Plato, the soul itself actually is. We have seen that, in all the three examined dialogues, the soul is defined by self-motion and is characteristically analysed in terms of its opposition to body. This verdict clearly runs contrary to the notion, which is occasionally made by commentators, that the soul is itself somehow a bodily thing.⁶⁵ Soul is not bodily because it is *prior* to body and the natural ruler over it. Nor, for this reason, does it make sense to interpret the references to the divided kinds of essence, Same and Different in the *Timaeus*' account of the cosmic soul's construction (*Tim.* 35a-b), which are said to pertain to or exist on the basis of bodies, as suggesting that the soul is itself corporeal.⁶⁶ However, at the same time we have seen that an essential feature of the soul in the *Timaeus*, the *Phaedrus* and the *Laws* is to control bodily motions and transformations, both within the individual living being and generally throughout the cosmos. This controlling function is owed to the soul's unique possession of self-motion. In all three contexts, the soul is thus defined by its relationship to and interaction with the body, as opposed to its separateness from and incompatibility with it. This relational dualism, as I described it earlier, suggests that, even though soul is characteristically opposed to body, it is also inextricably connected with it. In light of this, the most meaningful point of departure between soul and body for Plato might not be what we

⁶⁴ On the cosmos' everlastingness in the *Timaeus*, see Chapter 3.2.2. On 'proto-sempiternalism', see Chapter 4.5.

⁶⁵ On soul's relationship to body and its differences from Cartesian dualism, see Broadie 2001 and Johansen 2004: 139-142.

⁶⁶ The references are sometimes taken to contradict *Timaeus*' earlier statement that soul is prior to body; see e.g. Cherniss 1944: 424, Tarán 1971: 394 n. 29, and Dillon 1997: 39-41.

today regard as immaterial versus material features, such as bodiliness or spatial extension⁶⁷, but rather the opposition between motion which occurs by itself and motion which is dependent on an external cause.

⁶⁷ In a recent paper (Marinescu 2021), Rareș Ilie Marinescu has argued that soul's self-motion is presented as 'non-spatial' in the *Laws*, opposing this with the 'spatial' nature of the soul's motions in the *Timaeus*. In support of this, he cites especially *Laws* 896c-d, in which soul and the things related to soul are described as prior to body and the things belonging to body, such as 'length of bodies, width, depth and force' (*Laws* 896d1-2). However, I think that the two dialogues can be read continuously even on this point so long as one differentiates between two kinds of spatial extendedness, of which one applies to body and the other to soul. See, on this point, Johansen 2004: 140-141, who writes (on p. 141) that 'for Timaeus body is differentiated from soul by having *specific* spatial attributes (such as depth and solidity) rather than by the possession of spatial attributes as such'. Note also the force of *sômatôn* at *Laws* 896d2; the length, depth and width whose generation is posterior to that of the soul are geometrical dimensions which inhere in *bodies*.

6 The Platonic origins of the Platonists' defence

1. Introducing the inquiry

In a previous chapter (Chapter 4) I defended an alternative interpretation of the early Platonists' reaction to the *Timaeus*' origin-story. In order to set up the direction of travel in this chapter, it will be helpful to summarise first the conclusions which were reached there. Various ancient sources report that a group of early Platonists centred around Xenocrates, the second head of the Academy after Plato's death, compared the talk of generation in the *Timaeus* to the construction of diagrams in geometry. The exact terms of this diagrammatic analogy are rather obscure on the evidence of Aristotle's report in the *On the Heavens* alone. By looking especially to Simplicius' lengthier account of the Platonists' view, I argued that the analogy was based on an allusion to the *Timaeus*' account of the generation of the primary bodies, which are hypothesised as coming into being from two kinds of right-angled triangle. This link fits well with the geometrical character that distinguishes this part of the *Timaeus* and accords better with the ancient evidence than the traditional understanding of this analogy, which identifies the elementary constituents of the cosmos with the two major causal principles in the *Timaeus*, namely intelligence and necessity. It also matches with the Platonists' own natural-philosophical and metaphysical views as they are portrayed elsewhere in Aristotle's *On the Heavens* and *Metaphysics*, according to which bodies are understood to be generated by being reducible to surfaces and more basic geometrical principles. Finally, I concluded that the Platonists' point that the cosmos was temporally everlasting agreed with the *Timaeus*' relation of time and the cosmos' generation, but that Aristotle's objection against their defence was still valid so long as it was analysed on its own terms.

In this final chapter of the thesis, I want to take a step back and situate the early Platonists' defence of the *Timaeus* within a broader Platonic and early Academic context. In doing so, I will examine a range of passages from other Platonic dialogues, such as the *Gorgias*, the *Meno*, the *Republic* and the *Laws*, as well as a reported debate around geometrical terminology which emerged in the early Academy. The aim of the chapter is essentially

twofold. Firstly, I want to argue that, according to various dialogues outside the *Timaeus*, a close connection is drawn between the study of natural philosophy or astronomy, on the one hand, and the study of the mathematical sciences, and especially geometry, on the other hand.¹ Hence, even though natural philosophy is distinct and non-reducible to geometry, the proper approach to natural philosophy by Plato's lights is one that is informed and guided by established approaches in the mathematical sciences. The most programmatic exposition of this view is given in Socrates and Glaucon's discussion of the educational study which is assigned to the philosopher-rulers in the *Republic*, as we shall see. But I shall also contend that this same essential outlook can be traced in passages from the *Gorgias*, the *Euthydemus*, and the *Laws*, as well as being foundational in the *Timaeus*, so that a geometricizing approach to natural philosophy can be said to constitute a distinctive feature of Plato's conception of the discipline as a whole.² Secondly, I will argue that this fundamental kinship between geometry and natural philosophy in Plato was a source of inspiration for the early Platonists, both in their own natural-philosophical and metaphysical views and in their interpretation of the *Timaeus*. Consequently, even if the Platonists' arguments answer to issues or draw on conceptual resources which are not so clearly developed in Plato, the development of these debates typically originates from a Platonic source. The establishment of a closer link between Plato and his early Academic successors can also enable us to locate their analysis of the *Timaeus* within the broader mathematical context of the early Academy.³

The chapter is arranged in five main sections, of which the first three are concentrated on passages in Plato and the last two on the reactions of the early Platonists. To start, I will consider the relationship between geometry and natural philosophy in various works that were composed before or around the same time as the *Republic* (§2). Then, I will examine the connections between geometry and astronomy in the *Republic* (§3) and a cryptic description of bodily generation that parallels a geometrical sequence in the *Laws* (§4). After this, I will advance to consider an early Academic debate around the terminology of 'problems' in

¹ I do not draw a strong distinction between 'astronomy' (*astronomia*), understood as the study of bodies in motion, and 'natural philosophy', understood more generally as 'investigation concerning nature' (*historia peri physeôs*), in this chapter.

² In arguing thus, I hope to provide a Platonic antecedent to Aristotle's claim in the *Metaphysics* that 'philosophy has come to be mathematics for people nowadays, even though they allege that it ought to be studied for the sake of other things' (*Meta.* 1.9, 992b1-3, looking to the early Academy).

³ See Introduction, §3 ('The *Timaeus*' reception in the early Academy').

geometry and its relationship to the *Republic* (§5). Finally, I will connect the results of this discussion to the Platonists' interpretation of the *Timaeus*' origin-story (§6).

2. Geometry and astronomy before the *Republic*

Let us start out by considering the relationship between geometry and the study of natural philosophy in some passages from dialogues which were likely to be written before or contemporaneously with the *Republic*. I will also mention Socrates' illustration of a geometrical operation in the *Meno* (86e-87b), since this passage will prove relevant for contextualising the Platonists' reading of the *Timaeus* later. We can begin from Socrates' criticism of Callicles' ethical conduct in the *Gorgias* (*Gorg.* 507e6-508a7):

φασὶ δ' οἱ σοφοί, ὦ Καλλίκλεις, καὶ οὐρανὸν καὶ γῆν καὶ θεοὺς καὶ ἀνθρώπους τὴν κοινωνίαν συνέχειν καὶ φιλίαν καὶ κοσμιότητα καὶ σωφροσύνην καὶ δικαιοσύνην, καὶ τὸ ὅλον τοῦτο διὰ ταῦτα κόσμον καλοῦσιν, ὦ ἑταῖρε, οὐκ ἀκοσμίαν οὐδὲ ἀκολασίαν. σὺ δέ μοι δοκεῖς οὐ προσέχειν τὸν νοῦν τούτοις, καὶ ταῦτα σοφὸς ὢν, ἀλλὰ λέληθέν σε ὅτι ἡ ἰσότης ἡ γεωμετρικὴ καὶ ἐν θεοῖς καὶ ἐν ἀνθρώποις μέγα δύναται, σὺ δὲ πλεονεξίαν οἶει δεῖν ἀσκεῖν· γεωμετρίας γὰρ ἀμελεῖς.

Wise men say, Callicles, that community and friendship, orderliness, moderation and justice hold together heaven and earth and gods and human beings, and that, on account of these things, my friend, they call this whole [a] *cosmos*, not an *anti-cosmos* or intemperance. You don't seem to me to pay attention to this. What's more, you're wise, but it's escaped you that geometrical equality has great power among both gods and human beings. But you think that one ought to cultivate excessive gain, because you neglect geometry.

The combined mention of geometry and a value-laden approach to natural philosophy in this passage is striking and invites careful consideration. Commentators often compare Socrates' remarks to a passage from Archytas of Tarentum, the fourth-century Pythagorean affiliate and a close contemporary of Plato, who eulogises the role of a mathematical kind of equality in

overcoming greed and inequality in one's society.⁴ I agree with this allusion and think that it can be used to orientate our reflection on Plato's understanding of the relationship between geometry and natural philosophy. Although the evidence is unfortunately limited, Archytas does not seem to have connected his views on the equalising power of geometry and calculation into a more global account of the natural world, its structure and its inherent value-bearing character.⁵ Rather, we might see the connection between these two themes as a departure on *Plato's* part, which is already tacitly acknowledged in the *Gorgias*. Socrates does not draw an overt link between the opinion of the wise on the value-laden nature of the cosmos and the power of geometry to act as a levelling force in society. However, their mention side-by-side invites reflection on their connectedness in a way which makes the *Gorgias* passage a precursor of their explicit co-ordination in other works. For instance, in the *Timaeus* the title-speaker says that 'anything which is good is beautiful, and what is beautiful is not without measure (*pan dê to agathon kalon, to de kalon ouk ametron*)' (*Tim.* 87c4-5). This suggests that, according to Timaeus' 'axiology' (or his theory of value), ostensibly ethical notions (such as goodness) are linked to ostensibly aesthetic notions (such as beauty), while both of these are in turn linked to ostensibly mathematical notions, such as measure and proportionality.⁶ Hence, virtues such as friendship, community and moderation, which may all be pre-supposed to derive their power from the good, may be cultivated by one's comprehension of mathematical principles such as equality and commensurability. Further, in the *Timaeus* we learn that the cosmos acquired its present-day state of order (*taxis*) from an original state of disorder (*ataxia*) following the intervention of a craftsman-god. This opposition between an initially chaotic condition and a final state of perfection parallels

⁴ See Archytas, fr. 3.6-10 Huffman: 'Calculation (*logismos*), when discovered, put a stop to dissension and increased harmoniousness. For there isn't excessive gain (*pleonexia*) when this was established but there is equality (*isotas*). For by this we'll find reconciliation concerning our co-operative agreements. Because of this the poor receive from the powerful and the wealthy give to those in need, both trusting that they will have what is equal (*to ison*) because of this.' Note, especially, the opposition of equality and excessive gain (*pleonexia*) in both texts. For discussion, see Huffman 2013: 258-261 and Horky 2019: 29-36. On the relationship between calculation (*logismos*) in fr. 3 and what Archytas calls 'logistic' (*logistikê*) in fr. 4, see Huffman 2005: 189-193 and 232-245.

⁵ Perhaps the most famous text of Archytas' natural-philosophical views is a thought-experiment which aimed to demonstrate the unlimited nature of the universe, and which was later appropriated by the atomist tradition (see fr. A24 Huffman, cf. Lucretius, *DRN* 1.968-983). This argument does not seem teleological. On Archytas' physical views, see Huffman 2005, ch. 6.

⁶ On the relationship between goodness and beauty (or *to kalon*) in Plato, see Barney 2010. For an argument that goodness (*to agathon*) is not primarily ethical but a 'transcategorical norm', see Gill 2007, reflecting on the ground-breaking analysis of mathematics and ethics in Burnyeat 2000. On number and morality in Plato's earlier dialogues, see Roochnik 1994.

Socrates' contrast between the orderly nature of the actual world-order (*kosmos*) and its contrary (*akosmia*). Thus, the pairing of geometry and natural philosophy in the *Gorgias* can be seen to anticipate Plato's more developed thinking in other works.

Other works present a more explicit connection. For instance, in the so-called 'digression' passage of the *Theaetetus* (172a-177c), Socrates says that the thought of the philosopher 'flies in every direction through "the earths below", as Pindar puts it, practising geometry on its surfaces and astronomy on "the heaven above" (*ta epipeda geômetroûsa, ouranoû th' huper astronomoûsa*) in his bid to discover the nature of every whole' (*Tht.* 173e4-174a2). This passage depicts the philosopher's inquiry as fundamentally holistic in character and suggests that geometry and astronomy combine to reveal the terrestrial and supra-terrestrial levels of the cosmos. In the same dialogue, Socrates also refers to Theodorus, the teacher of the young and talented mathematician Theaetetus, as a specialist in various disciplines including arithmetic, geometry and astronomy (*Tht.* 145a, d, cf. 169a).⁷ Additionally in the *Euthydemus*, a dialogue which it might be surprising to find mentioned within a research project centred on the *Timaeus*, Socrates makes the following curious remarks (*Euthyd.* 290b7-c6):

Οὐδεμία, ἔφη, τῆς θηρευτικῆς αὐτῆς ἐπὶ πλέον ἐστὶν ἢ ὅσον θηρεῦσαι καὶ χειρῶσασθαι· ἐπειδὴν δὲ χειρῶσονται τοῦτο ὃ ἂν θηρεύωνται, οὐ δύνανται τούτῳ χρῆσθαι, ἀλλ' οἱ μὲν κυνηγέται καὶ οἱ ἀλιῆς τοῖς ὀψοποιοῖς παραδιδόασιν, οἱ δ' αὖ γεωμέτραι καὶ οἱ ἀστρονόμοι καὶ οἱ λογιστικοί—θηρευτικοὶ γάρ εἰσι καὶ οὗτοι· οὐ γὰρ ποιοῦσι τὰ διαγράμματα ἕκαστοι τούτων, ἀλλὰ τὰ ὄντα ἀνευρίσκουσιν—ἅτε οὖν χρῆσθαι αὐτοὶ αὐτοῖς οὐκ ἐπιστάμενοι, ἀλλὰ θηρεῦσαι μόνον, παραδιδόασιν δῆπου τοῖς διαλεκτικοῖς καταχρῆσθαι αὐτῶν τοῖς εὐρήμασιν, ὅσοι γε αὐτῶν μὴ παντάπασιν ἀνήκτοί εἰσιν.

'No kind of hunting craft itself', [Socrates] said, 'extends any further than hunting or capturing. Whenever the hunters capture what they would hunt, they're not able to make use of it, but they and the fishermen hand it over to the cooks. And again, geometers and astronomers and calculators – for these individuals are of the hunting sort too, since each of them doesn't *compose* diagrams, but they discover what

⁷ On the combination of astronomy and arithmetic and/or geometry within a young intellectual's education, see also *Hipp. Maj.* 285c-d and *Prot.* 318e. On the historical Theodorus (of Cyrene, ca. 470-400 BCE), a mathematician with Pythagorean connections, see Zhmud 2008. On Theaetetus, see Chapter 4, n. 28 above, as well as Burnyeat 1978.

[already] exists – since they themselves don’t know how to make use of them but only how to hunt, hand over their discoveries to the dialecticians to make thorough use of them, I suppose; at least those of them who aren’t altogether un-intelligent.’

This passage has previously been analysed to show that the hierarchy of disciplines which Socrates envisions – in which geometers, astronomers and calculators are cast in the role of ‘hunters’, who pass on their ‘prey’ to the dialecticians – anticipates the educational programme of the *Republic*, in which a sequence of five mathematical sciences (arithmetic, geometry, solid geometry, astronomy and harmonics) culminates in the study of dialectic (*Rep.* 521c-535a).⁸ Although I find no reason to doubt this conclusion, I want to focus on another peculiar feature of it. Socrates says that the practitioners of geometry, astronomy and calculation are of the hunting kind (*thêreutikoi*), insofar as ‘each of them doesn’t *compose* diagrams, but they discover what [already] exists (*ta onta*)’. This comment distinguishes between two ways in which the objects of each of these disciplines can be approached, of which the first way is productive, whereas the second is heuristic.⁹ Although this distinction is not explained further in the context of the *Euthydemus*, I will argue later that it can be better grasped in connection with Socrates’ account of geometry and astronomy in the *Republic*, as well as an early Academic debate around the correct terminology in geometrical study.

Another interesting context which does not pertain to natural philosophy but in which a geometrical paradigm (together with the use of diagrams) is invoked for the sake of ethical investigation is the second geometrical passage of the *Meno*. Here, Socrates agrees to Meno’s demand to investigate what kind of thing (*poion*) virtue is, even though they do not know what (*ti*) it is, on the following conditions (*Meno* 86e1-87b2):

εἰ μή τι οὖν ἀλλὰ σμικρόν γέ μοι τῆς ἀρχῆς χάλασον, καὶ συγχώρησον ἐξ ὑποθέσεως αὐτὸ σκοπεῖσθαι, εἴτε διδακτόν ἐστιν εἴτε ὁπωσοῦν. λέγω δὲ τὸ ἐξ ὑποθέσεως ὧδε, ὥσπερ οἱ γεωμέτραι πολλάκις σκοποῦνται, ἐπειδάν τις ἔρηται αὐτούς, οἷον περὶ χωρίου, εἰ οἷόν τε ἐς τόνδε τὸν κύκλον τόδε τὸ χωρίον τρίγωνον ἐνταθῆναι, εἶποι ἂν τις ὅτι “Οὐπω οἶδα εἰ ἔστιν τοῦτο τοιοῦτον, ἀλλ’ ὥσπερ μὲν τινα ὑπόθεσιν προὔργου οἶμαι ἔχειν πρὸς τὸ πρᾶγμα τοιάνδε· εἰ μὲν ἐστιν τοῦτο τὸ χωρίον τοιοῦτον οἷον παρὰ τὴν δοθεῖσαν αὐτοῦ γραμμὴν παρατείναντα ἐλλείπειν τοιούτῳ χωρίῳ οἷον ἂν αὐτὸ τὸ

⁸ Hawtrey 1978.

⁹ On understanding Socrates’ remark as endorsing a kind of scientific ‘realism’, see §5 below.

παρατεταμένον ἤ, ἄλλο τι συμβαίνειν μοι δοκεῖ, καὶ ἄλλο αὖ, εἰ ἀδύνατόν ἐστιν ταῦτα παθεῖν. ὑποθέμενος οὖν ἐθέλω εἰπεῖν σοι τὸ συμβαῖνον περὶ τῆς ἐντάσεως αὐτοῦ εἰς τὸν κύκλον, εἴτε ἀδύνατον εἴτε μή.”

‘If not that, then at least relax the starting-point a little bit for me, and agree to investigate it from a hypothesis, whether [virtue] is taught or is in some [other] way. I mean by the term “from a hypothesis” the following, just as geometers frequently do their investigations, whenever someone asks them, in the case of a [certain] area, whether it is possible for a given area to be inscribed as a triangle into a given circle. One [geometer] might say: “I don’t know yet whether this [area] is of the certain size, but I think that I have, as it were, a kind of hypothesis which is of use for the issue, which goes like this. If the area is such that, when one has applied it as a rectangle to the given straight line in a circle, it is deficient by a figure similar to the figure which is applied, then I think that one [answer] is the result, whereas another is the result if it is impossible for this to be the case. So, by hypothesising, I’m willing to say to you what is the result concerning the inscription [of the triangle] in the circle, whether it’s impossible or not.”’

I want to make three observations on this passage which will be relevant to the discussion later.¹⁰ Firstly, Socrates agrees to continue the ongoing investigation into virtue by introducing a so-called *method of hypothesis*. Specifically, he states that he will inquire into the teachability of virtue ‘from a hypothesis’ (*ex hypotheseôs*), before explaining that, by the term ‘from a hypothesis’ (*to ex hypotheseôs*), he has in mind a commonplace heuristic tool in the study of geometry.¹¹ Next Socrates imagines the geometer explaining how the hypothetical operation is intended to work. The geometrical problem which Socrates poses is the question whether a certain area can be inscribed within a certain area as a triangle. According to the most influential re-construction of the problem¹², the hypothesis which the geometer proposes to solve it involves drawing a rectangle whose length coincides with the diameter of the inscribed circle. Then, one calculates whether the given area, when applied to the rectangle, falls short by another rectangle which is similar to the one inscribed. By making this

¹⁰ For various helpful studies, see Cook Wilson 1903, Gaiser 1964, Knorr 1986: 71-74, Lloyd 1992, Menn 2002: 209-215, Wolfsdorf 2008 and Iwata 2015.

¹¹ On this heuristic tool, see next paragraph. The guarded introduction of the language of hypothesis seems to indicate that the terminology (as opposed to the operation itself) is *not* established among the geometers, but may be plausibly taken to be Plato’s own. Compare the hedging reference to the geometer’s hypothesis later (*hōsper... tina hupothesin*). On the pre-history of the term *hypothesis* (which also notes its lack of precedent in mathematical contexts), see Wolfsdorf 2008: 37-41.

¹² That of Cook Wilson 1903. For a summary of its defence and alternative interpretations, see Iwata 2015.

second calculation, one can use it to work out whether the given area can be inscribed in the circle as a triangle, which was the original problem posed.

Secondly, *neither* the original problem *nor* the proposed way of solving it (which is presented as a hypothesis) are actually solved within the ensuing discussion of the *Meno*. Further, this is likely because the hypothesised problem which is posed was not even *able* to be solved at the time when Plato is thought to have written the *Meno* (ca. 385 BCE), because the mathematics needed to solve it had not been developed yet.¹³ The solution to the hypothesised problem requires one to draw a hyperbola which intersects with the top-right corner of the rectangle and the given circle. But hyperbolic and parabolic curves are widely reported to have been discovered by a mathematician named Menaechmus (ca. 380-320 BCE), who studied under Eudoxus and also spent time in the early Academy.¹⁴ We shall come to Menaechmus later, when we see that he was involved in an intra-Academic dispute around the nature of problems in geometrical inquiry.

Thirdly, the hypothetical operation which Socrates imagines the geometer performing is nowadays agreed to be based on an early version of what would later become known as the *method of geometrical analysis (analysis)*.¹⁵ Analysis is a tool of mathematical investigation. According to this method, the investigator begins by assuming that the thing which is the object of his or her search is known or true. Then, one makes a sequence of inferences from this initial assumption until one reaches an inference which is deemed to be known or true independently of the ones prior to it. The method is called ‘analysis’ because of this backward inferential procedure (*analysis* > *anapalin lysis*, ‘resolution backwards’) and it is conventionally opposed to ‘synthesis’ (*synthesis* > *sun-tithênai*, ‘compose’, ‘put together’), in which the final inference in an analytical series is assumed first.¹⁶ We know that an early form of geometrical analysis was practised by the fifth-century mathematician Hippocrates of Chios (ca. 440-400 BCE), and this method was developed in the early Academy by a mathematician named Leodamas of Thasos (fourth century BCE), presumably under the influence of Plato’s

¹³ On this point, see the relevant sections of Knorr 1986, Menn 2002, and Iwata 2015.

¹⁴ The texts of Menaechmus’ mathematics are collected in Lasserre 1987: 117-124; for a review of his thought, see Polycarpou 1999. See also §5 below.

¹⁵ On this point, see the relevant sections of Menn 2002, Wolfsdorf 2008 and Iwata 2015.

¹⁶ This summary is based on Pappus of Alexandria, *Collection* 7.1, a fourth-century CE work which counts among our most valuable sources on analysis.

method of hypothesis.¹⁷ Socrates' appropriation of analysis in the *Meno* indicates that Plato was not only familiar with this procedure but also saw potential in it for other kinds of philosophical investigation.¹⁸ Later we shall see that analysis was also applicable to astronomical study and the Platonists' interpretation of the primary bodies' generation in the *Timaeus*.

3. The geometrical foundations of astronomy in the *Republic*

I turn now to Socrates' discussion of the proper study of geometry and astronomy within the context of the education of the future philosopher-rulers in Book 7 of the *Republic*.¹⁹ For ease of exposition, I divide this section into two sub-sections, which focus in turn on the proper way of studying geometry and the proper way of approaching astronomy.

(i) The study of geometry

The overall and most fundamental aim of the educational programme which Socrates proposes for the philosopher-rulers in the *Republic* is to turn the soul away from what comes into being and towards what is, so that it can ultimately ascend and see the good (518c-d, 519c-d, 521c-d). In order to fulfil this aim, Socrates presents a curriculum of five mathematical sciences which all the trainee-philosophers are to undertake before the study of dialectic (521c-535a).²⁰ The first science chosen is arithmetic and calculation (*arithmetikê te kai logistikê*), which is selected because of its power to compel the soul to study numbers

¹⁷ On Hippocrates' method of reduction (*apagôgê*) and its relationship to the *Meno*'s hypothetical method, see especially Karasmanis 2011. On Leodamas' development of analysis, see the texts listed at Lasserre 1987: 43-46, and compare the mention of analysis (*hê analusis*) in Philodemus, *History of the Academy* Col. Y, ll. 2-17, quoted in the Introduction, §3 ('The *Timaeus*' reception in the early Academy') above.

¹⁸ On Plato's appropriation of mathematical methods, see especially Mueller 1992.

¹⁹ All un-marked references will be to the *Republic* in this section. Translations are my own but are based on Grube, rev. Reeve (in Cooper 1997).

²⁰ Valuable discussions of the *Republic*'s educational programme include Gaiser 1986, Mueller 1991a and 2005, Robins 1995, Miller 1999, and Burnyeat 2000. Further references to individual issues will be given in the course of the discussion below.

separately from their ubiquitous attachment to perceptible objects and their representation as physical units (522b-526c). Next comes geometry, which is said to follow naturally from arithmetic (526c8-9). Socrates says firstly that geometry is appropriate if it compels the soul to observe being and inappropriate if it compels the soul to observe becoming (526e6-7). Then he makes the following comments about it (527a1-b8):

Οὐ τοίνυν τοῦτο γε, ἧν δ' ἐγώ, ἀμφισβητήσουσιν ἡμῖν ὅσοι καὶ σμικρὰ γεωμετρίας ἔμπειροι, ὅτι αὕτη ἡ ἐπιστήμη πᾶν τούναντίον ἔχει τοῖς ἐν αὐτῇ λόγοις λεγομένοις ὑπὸ τῶν μεταχειριζομένων.

Πῶς; ἔφη.

Λέγουσι μὲν που μάλα γελοίως τε καὶ ἀναγκαίως· ὥς γὰρ πράττοντές τε καὶ πράξεως ἔνεκα πάντας τοὺς λόγους ποιούμενοι λέγουσιν τετραγωνίζειν τε καὶ παρατείνειν καὶ προστιθέναι καὶ πάντα οὕτω φθεγγόμενοι, τὸ δ' ἔστι που πᾶν τὸ μάθημα γνώσεως ἔνεκα ἐπιτηδεύμενον.

Παντάπασι μὲν οὖν, ἔφη.

Οὐκοῦν τοῦτο ἔτι διομολογητέον;

Τὸ ποῖον;

Ὡς τοῦ ἀεὶ ὄντος γνώσεως, ἀλλὰ οὐ τοῦ ποτέ τι γιγνομένου καὶ ἀπολλυμένου. Εὐομολόγητον, ἔφη· τοῦ γὰρ ἀεὶ ὄντος ἡ γεωμετρικὴ γνῶσις ἐστίν.

‘Now all those who are even slightly experienced in geometry will not vacillate about this at any rate’, I said, ‘that this science is the complete opposite to the things which are spoken in accounts about it by those who put their hands to it.’

‘How do you mean?’, [Glaucón] said.

‘They speak about it in what is truly a ridiculous but also an unavoidable way. For they compose all their accounts on the assumption that they’re carrying out *actions* and for the purposes of *action*, when they speak of ‘squaring’, ‘applying’, ‘adding’, and making all their utterances in this way. But, I suppose, the entire discipline is practised for the sake of knowledge.’

‘That’s absolutely right’, he said.

‘And so isn’t this a further thing which ought to be agreed to?’

‘How do you mean?’

‘That [it, sc. the entire discipline] is the knowledge of what always is, but not of what comes into being and is destroyed at some particular time.’

‘That ought to be heartily agreed to’, he said. ‘For the science of geometry is knowledge of what always is.’

We need to take care here in diagnosing what is and is not ridiculous and unavoidable (cf. *geloiôs te kai anagkaiôs*) about the way that geometry is studied by its contemporary practitioners, according to Socrates’ account. Firstly, as Myles Burnyeat and Ian Robins have

especially emphasised, it does not seem to be merely the geometers' *use* of the language of action which is ridiculous about the way that they speak about their activities. This is because Socrates says that this language is not only ridiculous but also unavoidable or necessary (*anagkaiôs*). This suggests that the language of action is a constituent part of geometrical practice insofar as the geometers have no other choice than to make use of it.²¹ Thus, even the proper study of geometry will employ the language of action, despite the fact that this language is at the same time ridiculous.

Secondly, as Ian Robins has observed, 'the language of making and the examples Plato gives of this language suggest constructions set forward as problems for geometers to solve'.²² As he notes, the example of 'squaring' (*tetragônizein*) can be understood as an allusion to the problem of constructing a square that is equal in area to a given circle, which was associated with Hippocrates of Chios. The talk of 'applying' (*parateinein*) also appeared in the passage quoted above from the *Meno* (87a5) to describe a certain area as a rectangle whose length coincides with the diameter of a circle. This suggests that, when Socrates ridicules the geometers' language for being characterised by action, he has in mind contemporary explanations of traditional geometrical problems, which geometers attempted to solve by posing other, less intractable, problems, just as we have seen illustrated in the passage from the *Meno*.²³ Consequently, there is no reason to doubt that Socrates' representation of the geometers' activities deviates significantly from actual geometrical practice.

Thirdly and most significantly, what seems to be ridiculous for Socrates about the geometers' accounts is not their use of the language of action as such, but rather the metaphysical and epistemological views on geometrical objects which this language implies (or seems to imply).²⁴ Socrates explains what is ridiculous and necessary by stating that the geometers compose all their accounts 'on the assumption that that they are performing *actions* and for the sake of *action* (*praxeôs heneka*)', before contrasting this with the view that the entire discipline is practised 'for the sake of knowledge' (*gnôseôs heneka*). Then, he *infers* (cf. *oukoun*) a *further* point (cf. *eti*) which ought to be agreed to, namely that the knowledge for the sake of which geometry is practised is 'knowledge of what always is, but not of what

²¹ See Burnyeat 1987: 218-219 and Robins 1995: 365-366, as well as Cherniss 1951: 424.

²² 1995: 366, citing the respective entries in Mugler 1958.

²³ On the application of geometry-like problems to astronomy, see below.

²⁴ So also Burnyeat and Robins.

comes into being and is destroyed at some particular time'. The fact that this additional point is explicitly prescriptive in nature (cf. *diomologêteon*) suggests that it is not something which is already integrated into the current study of the science. So, even though the contemporary geometers would presumably also maintain that their activities are directed at knowledge, they assume that the kind of knowledge which their operations produce is knowledge which pertains to objects which come into being and pass away, as opposed to Socrates' view that geometry is knowledge which pertains to objects which are un-generated and eternal. Moreover, this metaphysical and epistemological blunder is a consequence of the geometers' characteristic use of the language of action, which leads them to pre-suppose that their activities involve the generation of things (i.e. geometrical objects) which were not in existence before. We will come back to this passage later, when I will argue that it gave rise to a conflict of views among some of Plato's early associates in the Academy.

(ii) The study of astronomy

After re-emphasising the enormous difference between one who has understood the subject of geometry and one who has not, Socrates advances from his discussion of geometry to nominate astronomy as the third subject of study (527c-d). This leads to a curious exchange between Socrates and Glaucon, in which Socrates corrects himself by stating that, in fact, solid geometry ought to be studied after (plane) geometry and before astronomy, understood as the science of solid objects in motion (528a-b, cf. d-e). Although I cannot dwell here on the potential reasons behind this presentation of the educational sequence, it is clearly of great significance that solid geometry comes after plane geometry and, especially, precedes astronomy, so that one who studies the heavenly bodies already has an understanding of the mathematics of solid bodies themselves.²⁵ Then, after Glaucon has given his second naïve

²⁵ Also in the *Timaeus*' account of the primary bodies' generation a knowledge of solid geometry is presumed. On the reasons Socrates gives that solid geometry has not yet been properly developed as a science (528c-d), see Burnyeat 1987: 150 and 2000: 1, 68, Robins 1995: 374-375 and Izumi 2011. On Theaetetus' achievements in solid geometry, as known from Book 13 of Euclid's *Elements*, see the references listed at Chapter 4, n. 28 above.

account of the nature of astronomy, Socrates explains the way it really ought to be studied for the purposes of turning the soul away from becoming and towards being (529c7-530c2):

Ὦδε, ἦν δ' ἐγώ. ταῦτα μὲν τὰ ἐν τῷ οὐρανῷ ποικίλματα, ἐπεὶ περ ἐν ὁρατῷ πεποικίλται, κάλλιστα μὲν ἡγεῖσθαι καὶ ἀκριβέστατα τῶν τοιούτων ἔχειν, τῶν δὲ ἀληθινῶν πολὺ ἐνδεῖν, ἅς τὸ ὄν τάχος καὶ ἡ οὕσα βραδυτὴ ἐν τῷ ἀληθινῷ ἀριθμῷ καὶ πᾶσι τοῖς ἀληθέσι σχήμασι φορὰς τε πρὸς ἄλληλα φέρεται καὶ τὰ ἐνόντα φέρει, ἃ δὴ λόγῳ μὲν καὶ διανοίᾳ ληπτὰ, ὅψει δ' οὐ· ἢ σὺ οἶει;

Οὐδαμῶς γε, ἔφη.

Οὐκοῦν, εἶπον, τῇ περὶ τὸν οὐρανὸν ποικιλίᾳ παραδείγμασι χρηστέον τῆς πρὸς ἐκεῖνα μαθήσεως ἕνεκα, ὁμοίως ὥσπερ ἂν εἴ τις ἐντύχοι ὑπὸ Δαιδάλου ἢ τινος ἄλλου δημιουργοῦ ἢ γραφέως διαφερόντως γεγραμμένοις καὶ ἐκπεπονημένοις διαγράμμασιν. ἡγήσαιτο γὰρ ἂν πού τις ἔμπειρος γεωμετρίας, ἰδὼν τὰ τοιαῦτα, κάλλιστα μὲν ἔχειν ἀπεργασίᾳ, γελοῖον μὲν ἐπισκοπεῖν αὐτὰ σπουδῇ ὡς τὴν ἀλήθειαν ἐν αὐτοῖς ληψόμενον ἴσων ἢ διπλασίων ἢ ἄλλης τινὸς συμμετρίας.

Τί δ' οὐ μέλλει γελοῖον εἶναι; ἔφη.

Τῷ ὄντι δὴ ἀστρονομικόν, ἦν δ' ἐγώ, ὄντα οὐκ οἶει ταῦτόν πεῖσεσθαι εἰς τὰς τῶν ἄστρον φορὰς ἀποβλέποντα; νομεῖν μὲν ὡς οἷόν τε κάλλιστα τὰ τοιαῦτα ἔργα συστήσασθαι, οὕτω συνεστάναι τῷ τοῦ οὐρανοῦ δημιουργῷ αὐτόν τε καὶ τὰ ἐν αὐτῷ· τὴν δὲ νυκτὸς πρὸς ἡμέραν συμμετρίαν καὶ τούτων πρὸς μῆνα καὶ μηνὸς πρὸς ἐνιαυτόν καὶ τῶν ἄλλων ἄστρον πρὸς τε ταῦτα καὶ πρὸς ἄλληλα, οὐκ ἄτοπον, οἶει, ἡγήσεται τὸν νομίζοντα γίνεσθαι τε ταῦτα ἀεὶ ὡσαύτως καὶ οὐδαμῇ οὐδὲν παραλλάττειν, σῶμά τε ἔχοντα καὶ ὁρώμενα, καὶ ζητεῖν παντὶ τρόπῳ τὴν ἀλήθειαν αὐτῶν λαβεῖν;

Ἐμοὶ γοῦν δοκεῖ, ἔφη, σοῦ νῦν ἀκούοντι.

Προβλήμασιν ἄρα, ἦν δ' ἐγώ, χρώμενοι ὥσπερ γεωμετρίαν οὕτω καὶ ἀστρονομίαν μέτιμεν, τὰ δ' ἐν τῷ οὐρανῷ ἐάσομεν, εἰ μέλλομεν ὄντως ἀστρονομίας μεταλαμβάνοντες χρήσιμον τὸ φύσει φρόνιμον ἐν τῇ ψυχῇ ἐξ ἀχρήστου ποιήσιν.

'I mean like this', I said. '[One ought to] consider these varied decorations in heaven, since they are decorations in [the] visible [world], to be in [the] most beautiful and precise condition of the things of this kind, but to fall far short of the true [things], i.e. the motions which the 'real' quickness and the 'real' slowness possess by virtue of their true number and all their true shapes, both relative to one another and which move the things that inhere in them. These things are apprehended by reason and thought, not by sight. Or do you suppose not?'

'Not at all', [Glaucón] said.

'So then', I said, 'one ought to use the decorative variety which pervades the universe as exemplary models for the sake of learning with regard to *those* things, in the same way as if someone were to come across diagrams carefully drawn and laboured over by Daedalus or some other demiurge or painter. I imagine that someone who's experienced in geometry, having seen things of this kind, would consider them to be supremely beautiful in terms of their workmanship. Yet [he] would consider] it

ridiculous to inspect them in earnest with the intention of apprehending in them the truth of equal things, double things or any other kind of commensurate relation.'

'What wouldn't be ridiculous about it?', he said.

'Don't you suppose', I said, 'that one who's astronomical in reality will have the same experience when he casts his eye at the movements of the heavenly bodies? He'll consider, [seeing] that the products of this kind were constructed to be in the most beautiful way, that heaven and its contents were so constructed by a [universal] demiurge. But regarding the commensurate relation of night to day, these things to the month, month to year, and of the other heavenly bodies to themselves and one another, don't you suppose that he who considers them will think it absurd that these things always come to be unchangingly and don't deviate at all in the slightest, since they possess body and are visible, and to seek to grasp the truth from them in any way?

'That's my belief, now I hear it from you', he said.

'It's by making use of problems, then', I said, 'that we'll go forth, as [in] geometry so also in astronomy. We will take leave of the things in heaven, if, by 'really' partaking in astronomy, our intention is to make the naturally intelligent [part] in the soul useful from being useless.'

This long passage contains Socrates' prescriptions for the proper study of astronomy for the sake of philosophical rule. Since I am centrally interested in its presentation of the relationship between astronomy and geometry, I will sidestep various details which have been debated by commentators.²⁶ The key aspect to note is that Socrates advocates a kind of astronomical study which is based upon the (proper) study of geometry. More precisely, he lays out the way that astronomy ought to be practised by imagining the reaction of an individual who is trained in geometry (*tis empeiros geômetrias*) to the diverse motions of the heavenly bodies; this reaction then serves to exemplify the observation of one who is truly astronomical (*tôi onti dê astronomikon... onta*).²⁷ Particular emphasis falls on the epistemological caution of the geometrically informed astronomer towards the mathematical relations which are presumed to exist within the heavens. For example, Socrates says that such an observer will consider it ridiculous (*geloion*) to inspect the heavens for the purposes of understanding the truth of various commensurate relations (*symmetriai*), citing the examples of the equal and the double.²⁸ Similarly, the true astronomer will regard it as *absurd* (*atopon*) to grasp the truth concerning the commensurate relations of various temporal measurements, such as that

²⁶ For various accounts of the *Republic's* instructions for astronomy, see Mueller 1980, Vlastos 1980, Mourelatos 1980 and 1981, Bulmer Thomas 1984, Gregory 1996 and Bodnár 2021, as well as the studies listed at n. 20 above.

²⁷ On the force of *tôi onti* (530a4), cf. *Phd.* 99b2-4.

²⁸ On the meaning of *symmetriai*, see Mourelatos 1980: 39-41.

between day and night, day-night and month, and month and year, because the heavenly bodies, being corporeal and visible, are not absolutely uniform or unchanging. I take it that the point of this description is not to discourage visual scrutiny of the heavens altogether, but to emphasise that the *truth* (*alêtheia*, at 529e5, 530b4) concerning the mathematical relationships cannot be grasped from the inspection of their astronomical manifestations alone. Thus, in a parallel way to the earlier case of geometry, what differentiates the proper study of astronomy from its contemporary practice is the science's epistemological assumptions, as opposed to astronomers' use of the visual data provided by the heavens as such. The prior study of geometry primes the astronomer to practise epistemological caution concerning the mathematical relations in the heavens.

Socrates says that one ought to use the various decorations in the heavens (*poikilmata*) – meaning the diverse motions of the heavenly bodies – as paradigms or exemplary models (*paradeigmata*, cf. *paradeigmasi*) for the sake of undertaking the intelligible motions which are characterised by 'real' quickness and slowness, in the same way that one would examine diagrams (*diagrammata*, cf. *diagrammasi*) which have been painstakingly constructed by some kind of demiurge-figure.²⁹ How is this investigative procedure supposed to proceed? In the case of geometry, Socrates has briefly described the role which is played by diagrams within the course of his image of the Divided Line, which it might be helpful to recall here (510d5-511a2):

Οὐκοῦν καὶ ὅτι τοῖς ὀρωμένοις εἶδεσι προσχρῶνται καὶ τοὺς λόγους περὶ αὐτῶν ποιοῦνται, οὐ περὶ τούτων διανοοῦμενοι, ἀλλ' ἐκείνων πέρι οἷς ταῦτα ἔοικε, τοῦ τετραγώνου αὐτοῦ ἔνεκα τοὺς λόγους ποιούμενοι καὶ διαμέτρου αὐτῆς, ἀλλ' οὐ ταύτης ἣν γράφουσιν, καὶ τᾷλλ' οὕτως, αὐτὰ μὲν ταῦτα ἃ πλάττουσί τε καὶ γράφουσιν, ὧν καὶ σκιαὶ καὶ ἐν ὕδασι εἰκόνες εἰσίν, τούτοις μὲν ὡς εἰκόσιν αὖ χρώμενοι, ζητοῦντές τε αὐτὰ ἐκεῖνα ἰδεῖν ἃ οὐκ ἂν ἄλλως ἴδοι τις ἢ τῇ διανοίᾳ.

So, you also [know] that they [sc. those who pre-occupy themselves with things concerning geometry, calculation and things of this sort, cf. 510c2-3] make use of forms which are seen and compose their accounts *about* them, not thinking about them, but [about] those [other] things which these things are like. They compose their accounts *for the sake of* the square itself and [the] diagonal itself, but not for the sake

²⁹ On the meaning of 'diagrams' (*diagrammata*) as encompassing both visual inscriptions and geometrical propositions, see Chapter 4, n. 10 above. On diagrams' heuristic function, see also Patterson 2007.

of this [diagonal] which they draw, and the other things in the same way. These things which they sculpt and draw, of which shadows and [reflections] in water are images, they use in turn as images, seeking to see those things which one would not see other than in one's mind.

In the mathematical sciences, investigators compose accounts *about* (*peri* + genitive) the visible forms which they sculpt³⁰ and inscribe, but they do so *for the sake of* (genitive + *heneka*) the things of which the visible forms are merely images, which can only be apprehended by the intellect. Further, even though they are composing accounts *about* the visible representations, they are really thinking of these other things for the sake of which these investigations are pursued. Correspondingly, we may suppose in the case of astronomy that accounts will be composed *about* the visible motions of the heavenly bodies, but *for the sake of* the intelligible motions, to which the visible heavenly motions stand in a deficit relation.³¹ So, even though astronomy begins from observation, the true astronomer will appreciate the heavenly motions as mere representations of an intelligible counterpart, which is the ultimate target of his or her attention.

A further hint of how this diagrammatic idealisation of the heavenly motions is to be imagined is provided by the final part of the passage, in which Socrates states that astronomy so approached will be pursued like geometry, namely 'by making use of problems' (*problêmasin... chrômenoi*). To this he adds that 'we will take leave of (*easomen*) the things in heaven, if, by "really" partaking in astronomy, our intention is to make the naturally intelligent [part] in the soul useful from being useless'. These lines have historically given rise to controversy over how *Republic*-style astronomy is supposed to be understood.³² I think, however, that Socrates' remarks can be apprehended clearly so long as they are taken in close connection with his preceding issuances on the geometrically inspired study of the heavens.

³⁰ *Plattousi* suggests three-dimensional forms.

³¹ The language of deficiency (*endein*, 529d2) might invite us to see Socrates' highly obscure reference to 'the true [things], i.e. the motions which the "real" quickness and the "real" slowness possess by virtue of their true number and all their true shapes, both relative to one another and which move the things that inhere in them' as an allusion to the Forms of Quickness and Slowness, comparing e.g. *Phd.* 74d-e. However, as Burnyeat 2000: 35-37 argued, the references to 'the square itself' and '[the] diagonal itself' in the case of mathematics are not necessarily references to Forms, but may rather denote an idealised manifestation of these figures without a defined metaphysical profile. For an alternative interpretation of the ultimate target which relies on a parallelism with the *Timaeus*, see below.

³² Compare the discussions of Vlastos 1980: 3-8, Mourelatos 1980: 13-18 and Gregory 1996: 459-465.

Firstly, the appeal made to geometrical precedent suggests that the reference to problems should be taken in a broadly technical sense to denote the use of constructions which were an established feature of geometrical practice.³³ This also agrees with Socrates' reference to the examples of 'squaring', 'applying' and 'adding' in his discussion of geometry earlier (527a-b), since these operations typically feature in different kinds of constructive procedures (such as were also illustrated in the *Meno*). Secondly, the reference to taking leave features within the apodosis of a conditional clause which alludes to the overall objective of the educational programme of converting the soul away from becoming and towards being, and so making its intellect 'useful' for philosophical rule. This suggests that the action will only be performed *if* one has fulfilled the requirements of astronomical study which have been overtly prescribed in the preceding exchanges. Hence, the activity which *easomen* denotes does not imply an outright rejection of the visual phenomena, but rather captures how the investigator will become more distanced from the perceptible domain following his or her mathematical idealisation of the objects in question.

We can better fathom the intellectual goals of conducting astronomy by means of geometry-style problems by comparing this passage with the only other reference to problems in the *Republic*, which features in Socrates' following discussion of the proper study of harmonics (530d-531d). Harmonics is initially introduced as a kindred discipline to astronomy, on the grounds that, while astronomy is concerned with visible motions, so harmonics is correspondingly concerned with audible ones (530d6-7). Socrates also endorses the view, which he ascribes to a group of Pythagoreans, that the two sciences are 'sisters' (530d7-8).³⁴ Then he proceeds to criticise a number of harmonic theories which have been connected with various Pythagorean thinkers³⁵, before objecting to one group of harmonic theorists as follows (531b7-c4):

³³ On this point, see Burnyeat 2000: 15 n. 18, following Mueller 1980: 120 n. 13, as well as Simplicius, *Comm. De Caelo* 488.21-24 Heiberg. Whereas the language of hypothesis in the *Meno* may well be Plato's own (see n. 11 above), the language of problems seems to be inherited from its existing use among the geometers (note, also, in support of this *Tht.* 180c5, in which the word appears in the mouth of the mathematician Theodorus). On the implications of this language, see §5 below.

³⁴ This passage shows a studied distance as well as agreement with 'the Pythagoreans' understood as an entirety. As Burnyeat 2000: 15-17 notes, Socrates is alluding to Archytas, fr. 1A, ll. 6-7 Huffman, in which not only astronomy and harmonics (or what Archytas calls 'music' [*môsika*]) but also geometry and arithmetic (or 'numbers' [*arithmoi*]) are described as 'subjects' (*mathêmata*) [which] seem to be siblings'. See also n. 4 above.

³⁵ For discussion, see the relevant sections of the items listed in nn. 20 and 26 above, as well as Mueller 1997.

... οὐ φημι τούτους λέγειν, ἀλλ' ἐκείνους οὓς ἔφαμεν νυνδὴ περὶ ἀρμονίας ἐρήσεσθαι. ταῦτ' οὖν ποιοῦσι τοῖς ἐν τῇ ἀστρονομίᾳ· τοὺς γὰρ ἐν ταύταις ταῖς συμφωνίαις ταῖς ἀκουόμεναις ἀριθμοὺς ζητοῦσιν, ἀλλ' οὐκ εἰς προβλήματα ἀνίσσιν, ἐπισκοπεῖν τίνες σύμφωνοι ἀριθμοὶ καὶ τίνες οὐ, καὶ διὰ τί ἑκάτεροι.

... I don't mean to speak about these [people], but those [others] whom we said just now that we would ask about harmonics. For they do the same thing as those [who are] in astronomy. For they seek the *numbers* in these commensurate sounds which are heard, but they don't ascend to problems, [in order] to inspect which numbers are commensurately audible and which ones are not, and what is the reason for each one.

The harmonic theorists in question here are guilty of the same methodological shortcoming as the contemporary practitioners of astronomy, whose epistemological presumptions were ridiculed earlier. In the case of harmonics, the contemporary practitioners of the science inquire into the numbers (*arithmoi*) which make up various audible commensurate relations (*symphōniai*) in the heavens, but they don't advance to pose problems (*problēmata*) about them, just as the contemporary astronomers were assumed not to pose problems about the commensurate relations of the heavenly bodies. Socrates also implies that the use of problems will enable one to identify the mathematical profile of the commensurate relations in each case. This suggests that, in the corresponding case of astronomy, the incorporation of problems into the science will allow one to study the numbers (*arithmoi*) in certain commensurate relations and their specific explanatory powers (cf. *dia ti*). We will return to this mathematicising approach to the natural phenomena in connection with the early Platonists' interpretation of the *Timaeus* at the end of the chapter.

4. Generation and geometry in the *Laws*³⁶

Just before turning to consider the Platonists' relationship to some of the ideas concerning geometry and natural philosophy which can be found in Plato, I want to examine the

³⁶ All un-marked Stephanus references are to the *Laws* in this section. Translations are my own but based on Saunders (in Cooper 1997), Mayhew 2008 and Schöpsdau 2011.

significance of a cryptic-looking passage which appears within the Athenian stranger's demonstration of soul's priority to body in the *Laws*.³⁷ In the course of developing his argument, the stranger compiles an initial list of eight motions, which all apply to the things that move in space (see 893b-894a, at 893c1-4). Then he introduces two further motions, namely the motion which is able to move other things but is unable to move itself (i.e. 'other-motion'), and the motion which is able to move both itself and other things (i.e. 'self-motion'), which he makes the 'second' and 'first' motions respectively (894b-d). Within his original list of eight motions, we find a curious description of the motion of generation (*genesis*) (894a1-8):

γίνεται δὴ πάντων γένεσις, ἡνίκ' ἂν τί πάθος ᾗ; δῆλον ὡς ὁπότεν ἀρχὴ λαβοῦσα αὖξιν εἰς τὴν δευτέραν ἔλθῃ μετάβασιν καὶ ἀπὸ ταύτης εἰς τὴν πλησίον, καὶ μέχρι τριῶν ἐλθοῦσα αἰσθησιν σχῆ τοῖς αἰσθανομένοις. μεταβάλλον μὲν οὖν οὕτω καὶ μετακινούμενον γίνεται πᾶν· ἔστιν δὲ ὄντως ὄν, ὁπότεν μένη, μεταβαλὼν δὲ εἰς ἄλλην ἕξιν διέφθαρται παντελῶς.

What does [the] generation of all things bring about, when some condition arises? It is clear that, at some moment, [a] starting-point, after admitting increase, advances to a second stage of change and, from this [stage of change] to one that is next, and, having advanced as far as three [stages of change], extends perception for those who are [able to] perceive it. Anything which undergoes transformation and alteration to motion comes into being in this way. [Then], it really is in a state of existence, for the time that it persists, but, after transforming into another state, it has been destroyed completely.

This puzzling description has given rise to a lively range of interpretations by commentators.³⁸ An especially clear analysis has been presented by Robert Mayhew within his commentary on *Laws* 10, who distinguishes between two different ways of understanding the passage. To begin with, Mayhew summarises the stranger's description as follows (2008: 113):

³⁷ For discussion, see Chapter 5.4.1 above.

³⁸ See, besides the two interpretations mentioned in Mayhew 2008: 113-117 and discussed below, the helpful overview in Schöpsdau 2011: 403-405.

The principle [sc. *archê*] 'receives growth' (which is the first change) → the second change → the third change → perceptible object(s).

Then he quotes an interpretation of the passage which was given by E. B. England in the second volume of his two-volume commentary on the *Laws* (2008: 114, quoting England 1921: 466):

Is the *archê* something or nothing? This description of *genesis* is not meant to be a historical account, but a logical deduction from Plato's doctrine of space. It is a kind of geometrical allegory. Geometry postulates a thing 'without parts or magnitude' (Arist. *Met.* A 992a21 [...]). The *first* transformation by which this grows [...] is its elongation into a (still imaginary) line; the second [...] is the extension flatwise of the imaginary line into an imaginary surface. With the third transformation [...] we pass into a region of sensible objects, for now *thickness* is added to length and breadth; the transformed *archê* 'furnishes perceivers with perception'...

Mayhew summarises England's reading of the description as follows (*ibid.*):

The principle (a point) 'receives growth' (the first change, the point becomes a line) → the second change (the line becomes a plane) → the third change (the plane becomes a solid) → perceptible object.

He then contrasts this with an alternative reading which is based on a comparison with the account of the primary bodies' generation in the *Timaeus* (*Tim.* 53b-56c). Mayhew's summary of the *Timaeus*' description, set alongside the *Laws* passage and illustrated via the example of the cube / earth, may again be quoted in full (2008: 115-116, together with my own headings):

The *Timaeus*' account of bodily generation

Isosceles triangle (sides 1: 1: $\sqrt{2}$) → square → cube → earth

Scalene triangle (sides 1: $\sqrt{3}$: 2) → equilateral triangle → octahedron → air

Scalene triangle (sides 1: $\sqrt{3}$: 2) → equilateral triangle → tetrahedron → fire

Scalene triangle (sides 1: $\sqrt{3}$: 2) → equilateral triangle → icosahedron → water...

The *Laws* passage

- (1) The first change: the principle (a triangle) 'receives growth'; i.e. it is formed from three lines and/or utilized by a soul (the craftsman).
- (2) The second change: triangles are put together to form a particular equilateral polygon (a triangle or square), which will become the face of one of the above mentioned solids.
- (3) The third change: polygons are put together to make perfect solids.
- (4) An accumulation of many perfect solids yields, depending on the type of solid, perceptible earth or air or fire or water. ...

Illustration via the example of the cube / earth

- (1) The first change: the principle (a right-angled isosceles triangle with sides 1: 1: $\sqrt{2}$) 'receives growth'; i.e. is put together by the craftsman.
- (2) The second change: two such triangles (of the same size) are put together to form a square. (It is likely that Plato has in mind two triangles here, as that would make the account of the formation of earth better parallel the formation of the other elements; but note that at *Timaeus* 55b3-7 the square is constructed out of *four* such triangles.)
- (3) The third change: six such squares are put together to form a cube.
- (4) Perceptible objects: when enough of these cubes have accumulated, there is earth that can be perceived by the senses.

In concluding his note, Mayhew re-iterates his preference for this ('triangle-based') interpretation over England's ('point-based') interpretation, especially in light of the parallel with the *Timaeus*.

I agree with Mayhew's assessment of the passage and the superiority of the 'triangle-based' interpretation over the 'point-based' interpretation, including its striking similarity to the account of bodily generation in the *Timaeus*.³⁹ What can this tell us more broadly about

³⁹ In support of the 'point-based' interpretation, E. B. England cited a passage from Book 1, chapter 9 of Aristotle's *Metaphysics*, in which Aristotle is discussing a Platonic-Platonist account of geometrical first principles. However, here Aristotle reports that Plato was *opposed* to the point as a geometrical doctrine, but that he referred to '[the] starting-point of [a] line' and frequently posited indivisible lines (*Meta.* A.9, 992a20-22). This suggests, minimally, that there are complications in ascribing to Plato the geometrical principle of the point. See Chapter 4.4 above, in which I argued that Xenocrates' postulation of indivisible lines cohered with *Tim.* 53c-d, in which Timaeus leaves open the kind of starting-points which are 'higher' than the elementary triangles. In support of the

Platonic views on the relationship between geometrical construction and bodily generation? E. B. England wrote in the passage quoted by Mayhew above that the description does not portray a ‘historical account’ but is instead a ‘logical deduction’, as well as ‘a kind of geometrical allegory’. However, the similarity with the *Timaeus* suggests that it is too fast to dismiss the account as not ‘historical’ in any sense. Although the *Laws* account does not feature within an origin-story on the cosmos, as in the *Timaeus*, the generative action which it depicts presumably correlates to an actual event of bodily formation which occurs continuously throughout the natural world. Thus, it must bear a more than merely ‘logical’ force, if ‘logical’ here denotes a theoretical analysis which does not correspond to physical reality in any way. But one can also see how a ‘logical’ aspect can be read into the passage, over and above its temporal (or, we might say, ‘literal’) dimension. The passage shows that bodily generation takes place according to a sequence of geometrical construction. This sequence involves a progression from a (presumably dimensionless) starting-point (*archê*) through the second and third phases of two- and three-dimensionality to a final state of bodiliness and perceptibility.⁴⁰ The progression necessarily occurs in this order, meaning that the earlier dimensional phases are necessarily prior to the ones which come after it, and one may presume that the process is everlastingly ongoing, so it has the valuation of a timeless (and so, perhaps in some sense, ‘allegorical’) truth.⁴¹ In the following sections, we can see how the early Platonists took over the ideas in this and other passages in Plato concerning the connectedness of geometry and the natural world and developed them within their own philosophical environment.

5. An early Academic debate around ‘problems’

‘triangle-based’ interpretation, Mayhew also observes the parallel between the *Laws*’ description as ‘extend[ing] perception for those who are [able to] perceive it’ with *Tim.* 56b-c, in which Timaeus says that the individual bodies of fire, air, water and earth, although they are *invisible* individually, become perceptible when they have assembled together. Mayhew (2008: 114, 116) also describes the passage as ‘Pythagorean’ in character, citing an account of Pythagorean cosmogony out of mathematical principles which is reported in Diogenes Laertius (8.25). However, it seems to me unclear whether this account should be read back into fifth- and fourth-century thinkers whom we regard as ‘Pythagorean’ or whether it has suffered from conflation with Platonic views (especially those in the *Timaeus*) in a way which frequently colours the post-Platonic Pythagorean tradition. On Plato’s Pythagoreanism, see Introduction, n. 7.

⁴⁰ On *auxê* understood as corresponding to our notion of a geometrical ‘dimension’, cf. *Rep.* 528b-d.

⁴¹ On the language of ‘allegory’ as distinguished from ‘metaphor’, see Chapter 3.4 above.

The thinkers who studied under and succeeded Plato in the early Academy were not unreflecting adherents of Plato's views, but nor were they so intellectually autonomous that they did not attend closely to Plato's writings in any way.⁴² Thus, in approaching the subject of the Platonists' views and their potential derivation from Plato, we should not expect to find an exact dialectical match between the concerns which interested both parties, but we should be open to tracing signs of influence, inspiration and elaboration. In this section, I will consider an intriguing debate which arose in the early Academy concerning the language of problems in geometry. The debate is uniquely attested in Proclus' commentary on the first book of Euclid's *Elements*, which was written sometime in the middle decades of the fifth century CE, although the conflict of views which it presents dates to the middle decades of the fourth century BCE.⁴³ All parties in the dispute are connected with the Platonic Academy, which shows that it was an intra-Academic quarrel. The context of Proclus' report is a discussion of geometrical propositions (*protaseis*) according to Euclid (ca. 325-270 BCE, fl. 300 BCE). Proclus begins by saying that, according to Euclidean geometry, propositions which follow from first principles are divided into two kinds, namely problems and theorems (*Comm. In Euclid* 77-78). On the one hand, problems (*problēmata*) include the construction of figures, their division into sections, subtractions and additions, and in general the characters that result from such procedures. Elsewhere he notes that problems require us 'to procure or construct something' (*Comm. In Euclid*, 179) and that they are those propositions whose aim is 'to produce, bring into view, or construct what in a sense does not exist' (*Comm. In Euclid*, 201). On the other hand, theorems (*theôrēmata*) demonstrate the inherent properties which belong to each figure. In theorems, 'we put forward something to be seen and known as a consequence of our hypotheses' (*Comm. In Euclid*, 179) and their function is 'to see, identify and demonstrate the existence or non-existence of a property' (*Comm. In Euclid*, 201). Now he reports an

⁴² Compare my comments and the references given in the Introduction, §3 ('The *Timaeus*' reception in the early Academy'), and in particular my quotation of Myles Burnyeat's observation that "'Platonism" is the name of a debate... not a fixed, unvarying essence' (Burnyeat 1987: 148, quoted in Introduction, n. 11). Burnyeat 1987 provides an inspiring study of the Platonists' views on metaphysics and mathematics as they are recorded in Books 13-14 of Aristotle's *Metaphysics* and their relationship to the middle books of the *Republic*.

⁴³ The involvement of Speusippus in the Academic debate provides a *terminus ante quem* of 339/338 BCE (the year of his death). The translations from Proclus are my own but are based on Morrow 1970. On Proclus as a source for the early Academy, see Tarán 1987.

ancient controversy about them (*Comm.* In Euclid, 77.15-78.12 = Speusippus fr. 72 Tarán = fr. 36 Isnardi Parente):

Ἦδη δὲ τῶν παλαιῶν οἱ μὲν πάντα θεωρήματα καλεῖν ἤξιωσαν, ὡς οἱ περὶ Σπεύσιππον καὶ Ἀμφίνομον, ἡγούμενοι ταῖς θεωρητικαῖς ἐπιστήμαις οἰκειοτέραν εἶναι τὴν τῶν θεωρημάτων προσηγορίαν ἢ τὴν τῶν προβλημάτων, ἄλλως τε καὶ περὶ αἰδίους ποιούμεναις τοὺς λόγους. οὐ γὰρ ἐστὶ γενέσεις ἐν τοῖς αἰδίους, ὥστε οὐδὲ τὸ πρόβλημα χώραν ἐπὶ τούτων ἂν ἔχοι, γενέσειν ἐπαγγελλόμενον καὶ ποιήσιν τοῦ μήπω πρότερον ὄντος, οἷον ἰσοπλεύρου τριγώνου σύστασιν, ἢ τετραγώνου δοθείσης εὐθείας ἀναγραφὴν, ἢ θέσιν εὐθείας πρὸς τῷ δοθέντι σημείῳ. ἄμεινον οὖν φασι λέγειν ὅτι πάντα ταῦτα ἔστι, τὰς δὲ γενέσεις αὐτῶν οὐ ποιητικῶς ἀλλὰ γνωστικῶς ὁρῶμεν ὥσανεὶ γινόμενα λαμβάνοντες τὰ ἀεὶ ὄντα, ὥστε καὶ πάντα θεωρηματικῶς ἐροῦμεν ἀλλ' οὐ προβληματικῶς λαμβάνεσθαι. Οἱ δὲ ἀνάπαλιν πάντα προβλήματα λέγειν ἐδικαίουν ὡς οἱ περὶ Μέναιχμον μαθηματικοί, τὴν δὲ προβολὴν εἶναι διττήν· ὅτε μὲν πορίσασθαι τὸ ζητούμενον, ὅτε δὲ περιωρισμένον λαβόντες ἰδεῖν ἢ τίς ἐστίν, ἢ ποῖόν τι, ἢ τί πέπονθεν, ἢ τίνας ἔχει πρὸς ἄλλο σχέσεις.

But already some of the ancients, such as those around Speusippus and Amphinomus, thought it right to call all [geometrical propositions] 'theorems', considering the designation of 'theorems' to be more fitting than that of 'problems' for the theoretical sciences, and especially for those which compose accounts about eternal things. For there is not [a] generation among the eternal, as a result of which the problem wouldn't have [a] place among them, since it proclaims [a] generation and production of what is not yet in existence before, as with the formation of an equilateral triangle, or the inscription of a square when a straight line is given, or the placement of a straight line through a given point. So, they say it's better to say that all these things are in existence and that we view the generations of them not in a productive sense but in a knowledge-based sense, grasping things which exist always as if they are coming into being. Consequently, we can say that all things are grasped 'theorematically' and not 'problematically'. But others, by contrast, judged to say that all [propositions] are 'problems', such as the mathematicians around Menaechmus, and that the projection⁴⁴ is twofold. Sometimes it brings about something which is being inquired into, while at other times it sees, with respect to [a] determinate [object], either what it is, or what kind of thing it is, or what condition it's in, or what states it has in relation to something else.

After reporting the Academic controversy, Proclus says that, in fact, both parties are correct. Speusippus and Amphinomus are correct because the problems of geometry (being a

⁴⁴ Morrow 1970 translates *probolê* as 'problem', but since Proclus uses both *probolê* and *problêma* it seems worthwhile to find an alternative term.

theoretical science) differ from those of mechanics (a productive science), since the latter are concerned with perceptible objects which come into being and undergo change. But Menaechmus and his followers are correct because the discovery of theorems does not occur without recourse to matter, i.e. intelligible matter.⁴⁵ Hence, ‘in going forth into this matter and shaping it, our ideas are reasonably said to resemble acts of production; for the movement of our thought in projecting its own ideas is a production, we have said, of the figures in our imagination and their properties. But it is in imagination that the constructions, sectionings, superpositions, comparisons, additions and subtractions take place, whereas the contents of our understanding all stand fixed, without any generation or change’ (*Comm. In Euclid*, 78).

We can begin our analysis of this Academic dispute by seeking to establish the commitments of each party more clearly. Firstly, Speusippus and Amphinomus⁴⁶ say that all geometrical propositions should be called ‘theorems’, not ‘problems’, in the theoretical sciences, and in particular those sciences which compose accounts about eternal things, because there is no generation (*ou... genesis*) among things which are eternal. Consequently, the language of problems is inappropriate, ‘since it proclaims [a] generation and production of what is not yet in existence before’. This shows that the choice of ‘problems’ is unsuitable because the objects of geometry are in fact *un-generated*, whereas ‘problem’ implies that they have come into being from a prior state of non-existence. Speusippus and Amphinomus also hold that geometrical objects are in existence⁴⁷ but that we observe their generations ‘not in a productive sense but in a knowledge-based sense, grasping things which exist always *as if* they are coming into being’. Consequently, we should say that we are apprehending these objects ‘theorematically’, not ‘problematically’. This suggests that the language of theorems is preferable to that of problems because it implies *knowledge-directed*, as opposed to

⁴⁵ The reference to intelligible matter (*noêtê hulê*) seems more likely to be Proclus’ own formulation than something which was already present in Menaechmus.

⁴⁶ Amphinomus was a mathematician and contemporary of Speusippus who is only known about through this and three other reports from Proclus’ commentary on the first book of Euclid’s *Elements*. See Lasserre 1987: 149–152. In one of these reports (D4 Lasserre) he is mentioned together with Menaechmus, while in another (D3 Lasserre) he is said to have distinguished between three kinds of problem, i.e. ‘orderly’, ‘intermediate’ and ‘disorderly’, depending on whether they admit of a single, multiple or unlimited number of solutions. This shows that Amphinomus’ rejection of the language of problems was not unqualified but restricted to its use in the theoretical sciences.

⁴⁷ On reading *panta tauta esti* instead of *panta taúta esti* (‘[they] are all *the same*’) in this line, see Tarán 1981: 424 n. 242, Bowen 1983: 26 n. 15 and Bénatouil-El Murr 2010: 58 n. 32.

production-directed, observation (*theôrêma*, from *theasthai*, ‘observe’, ‘contemplate’).⁴⁸ In short, ‘theorem’ is better than ‘problem’ because the objects of geometry are not subject to productive generation.

On the other hand, Menaechmus⁴⁹ and his mathematician-colleagues advocate the language of problems only, but distinguish between two kinds of projection (*probolê*) in the geometrical operation. The first kind of projection ‘brings about something which is being inquired into’, while the second ‘sees, with respect to [a] determinate [object], either what it is, or what kind of thing it is, or what condition it’s in, or what states it has in relation to something else’. Proclus also provides valuable further insight into their position later, when he notes that the discovery of *theorems* (*sic*) has recourse to matter, and that, when we ‘shape’ this matter in our minds, we *do* subject the objects studied to a kind of production in imagining the geometrical figures in question and their properties. The two kinds of projection which Menaechmus posits corresponds to the distinction between problems and theorems as Proclus defines it according to Euclid, while Proclus’ later reference to theorems shows that this is one of the types of geometrical proposition which he has in mind (even if he calls it a ‘problem’). This suggests that, although Menaechmus agrees with Speusippus and Amphinomus’ view that the language of problems implies generation, this language is preferable because the geometrical objects in *both* projective operations admit a kind of generation in the mind of the investigator, even though no generation takes place in actual fact. So, whereas Speusippus and Amphinomus hold that geometrical objects are un-generated unqualifiedly, Menaechmus and the mathematicians agree that they are eternal but maintain that they are also subject to a conceptual or imaginative kind of generation.

Following the brief but illuminating discussion of this report by Russell Dancy⁵⁰, I will refer from now on to Speusippus and Amphinomus’ position as a kind of mathematical *realism*

⁴⁸ For a suggestion on the possible motivation for this terminology, see below.

⁴⁹ For references to Menaechmus, see n. 14 above. Alongside his many mathematical accomplishments, Menaechmus is also noted for distinguishing two senses of the term ‘element’ (*stoicheion*) as (i) an individual unit within a geometrical proof and (ii) a simpler part into which a composite can be divided (D6 Lasserre), and for having called all un-demonstrated geometrical propositions ‘postulates’ (*aitêmata*), in opposition to others (such as Speusippus) who called them all ‘axioms’ (*axiômata*) (D4 Lasserre). This shows that the dispute around the language of problems was not isolated but belonged to a broader discussion on geometrical terminology which was presumably centred at the Academy.

⁵⁰ See Dancy 1991: 79-85, at 83-84. At the same time, I follow Dancy’s caution that ‘both the labels *realism* and *constructivism* are easily misused. The present labelling is merely a temporal expedient’ (1991: 83).

and Menaechmus and the mathematicians' position as a kind of mathematical *constructivism*. This terminology will be helpful to bear in mind when we compare this Academic debate to the Platonists' interpretation of the *Timaeus* in the following section.

What is the background and broader philosophical impetus for this Academic dispute? As Alan C. Bowen has argued in a paper devoted to the subject, the debate seems to have its origins in Socrates' discussion of geometry in the *Republic*.⁵¹ In what follows, I will offer further evidence in support of the connection between these two passages, although I will also depart from Bowen on some details of the debate's chronology and motivation. In the *Republic*, Socrates ridicules the contemporary study of geometry for its metaphysical and epistemological assumptions concerning geometrical objects. He also prescribes that geometrical knowledge is knowledge of what always is, as opposed to knowledge of what comes into being and passes away (*Rep.* 527a-b). Socrates' criticisms against the geometers as well as his own metaphysical and epistemological assumptions show a striking resemblance to the views of Speusippus and Amphinomus, according to Proclus' report. In particular, while Socrates contrasts a geometry pursued for the sake of action (*praxeôs heneka*) with one that is pursued for the sake of knowledge (*gnôseôs heneka*), Speusippus and Amphinomus distinguish between observing the generation of geometrical objects in a productive way (*poiêtikôs*) and doing so in a way that is directed at knowledge (*gnôstikôs*).⁵² Hence, Socrates can be said to advocate a 'realist' ontology on geometrical objects in the *Republic* in a way that parallels the 'realist' position of Speusippus and Amphinomus. Their alternative recommendation of the language of theorems may also have been prompted by Socrates' diagnosis of the ridiculousness of geometrical language in the *Republic*, as well as by his occasional use of the language of observation (*theasthai*) in connection with the soul's conversion to being in that context (see *Rep.* 526e6-7, 529a10-b3). Hence, Speusippus and

⁵¹ Bowen 1983. For another insightful discussion which relates the Academic conflict to the emergence of Euclidean deductive geometry, see Tarantino 2010. On the continuity of geometry in the early Academy, see Bénatouïl-El Murr 2010.

⁵² On this point, see Tarán 1981: 425 n. 243, Bowen 1983: 18-21 and Bénatouïl-El Murr 2010: 58. The parallel relies on a (naturally Platonic) slide from the language of action (*praxis*) to the language of production (*poiêsis*). It also matches with the contrast which was drawn in the *Euthydemus* between productive and heuristic ways of conducting one's studies by means of diagrams (*Euthyd.* 290b-c, quoted in §2 above). On the language of knowing (*gnôsis*, *gnôrizen*) used in connection with the Platonists' interpretation of the *Timaeus*, see n. 64 below.

Amphinomus appear to be following the *Republic's* view on the ontological status of geometrical objects in their prescription of the language of theorems over problems.

However, Menaechmus and the mathematicians may also have been appealing to Platonic authority in their retention of the sole use of the language of problems. For 'problems' – and not 'theorems' – appeared twice in the *Republic's* account of the geometricizing study of astronomy and harmonics (*Rep.* 530b6, 531c2). I also argued above that this language was likely to be derived from contemporary geometrical practice, even though Socrates is applying it in a way that invests it with new metaphysical (or 'meta-mathematical') directiveness.⁵³ Although this re-construction is admittedly speculative, I would like to suggest that, in prescribing the language of theorems over that of problems, Speusippus and Amphinomus may have been responding to the potentially misleading assumptions of the language of problems in the *Republic*. For, if the language of problems implies generation but Socrates' view is that geometrical objects always are, Speusippus and Amphinomus may have been compelled to advocate the language of problems to clarify their own (and, possibly, even an Academic) metaphysical position. This would then give adequate motivation to Menaechmus' objection that, in fact, the language of problems should be retained, but a distinction should be drawn between two kinds of projective activity.⁵⁴ Menaechmus' intervention can then be seen to absorb the 'realist' claim that geometrical objects are eternal and un-generated in fact, but to defend a 'constructivist' viewpoint which emphasises the importance of problematic construction in a way which is continuative with the contemporary study of the subject. In the following section, we can examine how the stakes of this debate, although nominally geometrical in focus, carried across to the domain of natural philosophy and the interpretation of the cosmos' generation in the *Timaeus*.

6. The Platonists' interpretation of the *Timaeus*, again

⁵³ On the terminology of 'meta-mathematics', see Burnyeat 2000: 46 and Gill 2007.

⁵⁴ Conversely, Bowen 1983: 18-21 argues that Menaechmus' view was formulated *before* Speusippus and Amphinomus and was responding directly to the geometrical criticisms which were voiced by Socrates in the *Republic*. However, the opposition between two kinds of projection seems better-motivated if Speusippus and Amphinomus have already claimed that *all* geometrical propositions should be re-labelled as theorems. On the pre-Euclidean history of the distinction between problems and theorems, as well as the seniority of constructing problems over formulating theorems, see Niebel 1959: 26-39, Knorr 1986, Menn 2002 and Tarantino 2010.

In this final section of the chapter, I will relate the preceding discussion of Plato and the Platonists' views on geometry and natural philosophy to the Platonists' interpretation of the *Timaeus*, building on the findings of a previous chapter (Chapter 4). Let us begin by re-considering the Platonists' claim, according to Simplicius' report, that the cosmos' generation (that is, in the *Timaeus*) was 'spoken from [a] hypothesis (*ex hypotheseôs eirêmenên*) for the sake of instruction concerning the arrangement of the prior and more compounded things in it' (Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente). As I have already argued, this passage alludes to the *Timaeus*' account of the primary bodies' generation, while the reference to a hypothetical operation looks to Timaeus' action of hypothesising the two kinds of right-angled triangle as the starting-point of the primary bodies (*Tim.* 53c-d, at d5). To this we can now add that the language of hypothesis appears in the second geometrical passage of the *Meno*, in which Socrates uses the very same expression (*ex hypotheseôs*) as that which Simplicius ascribes to the Platonists. I also observed earlier that the *Meno*'s illustration of a hypothetical operation is derived from an early form of the geometrical method of analysis (*analysis*) that had been developed by Hippocrates of Chios.⁵⁵ I argue that this background can help us to clarify the geometrical target of the Platonists' comparison between geometrical diagrams and the primary bodies' generation in the *Timaeus*. For the Platonists claimed that this account was directed at differentiating between the elementary and composite parts of the cosmos and that their interrelationship could not be understood 'unless one *analyses* in one's mind (*ton mê analusanta têi epinoiai*) the compounds into simples', just as 'through diagrams mathematicians *analyse* (*analuouai*) composites into simples in seeking their [sc. the composites'] nature' (Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente). The reference to analysis in Simplicius' report suggests the same essential kind of reductive procedure as that which is envisioned in the hypothetical illustration in the *Meno*, as well as that which is carried out in the *Timaeus*' account of the primary bodies' generation. Hence, just as geometers reduce one problem to another problem in a way that can be framed as a hypothetical operation, so the Platonists hold that the bodily aspect of the cosmos can be reduced to more

⁵⁵ See §2 above, with the reference to Hippocrates at n. 17.

elementary geometrical units. The Platonists interpreted this part of the *Timaeus*' narration as akin to an analytic geometrical operation.

The use of hypotheses in geometry and the other mathematical sciences also appears in the course of Socrates' discussion of the Divided Line in the *Republic*.⁵⁶ Here, Socrates says that the soul is compelled to investigate from hypotheses in one intelligible section of the line, proceeding not towards a starting-point but towards a terminus, whereas in the other intelligible sub-section it will progress from a hypothesis (*ex hypotheseôs*) towards an un-hypothetical starting-point (*Rep.* 510b).⁵⁷ Now he tries to explain his meaning more clearly (*Rep.* 510c2-d4):

οἶμαι γάρ σε εἰδέναι ὅτι οἱ περὶ τὰς γεωμετρίας τε καὶ λογισμοὺς καὶ τὰ τοιαῦτα πραγματευόμενοι, ὑποθέμενοι τό τε περιττὸν καὶ τὸ ἄρτιον καὶ τὰ σχήματα καὶ γωνιῶν τριττὰ εἶδη καὶ ἄλλα τούτων ἀδελφὰ καθ' ἐκάστην μέθοδον, ταῦτα μὲν ὡς εἰδότες, ποιησάμενοι ὑποθέσεις αὐτά, οὐδένα λόγον οὔτε αὐτοῖς οὔτε ἄλλοις ἔτι ἀξιοῦσι περὶ αὐτῶν διδόναι ὡς παντὶ φανερῶν, ἐκ τούτων δ' ἀρχόμενοι τὰ λοιπὰ ἤδη διεξιόντες τελευτῶσιν ὁμολογουμένως ἐπὶ τοῦτο οὗ ἂν ἐπὶ σκέψιν ὁρμήσωσι.

For I think you know that those who pre-occupy themselves with geometry, calculation and things of this sort hypothesise the odd and the even and the [different] shapes and the three kinds of angle and other things which relate to these in each inquiry, [thinking] that they *know* them. After making them hypotheses, they no longer think it worthwhile to give any account about them, either to themselves or to anyone else, [thinking] that they're clear to anyone. Beginning from these, they next advance through what's left and reach a terminus in full agreement from which they should initiate their investigation.

Socrates' description of the mathematicians' use of hypotheses bears a striking resemblance to Timaeus' presentation of the natural philosophers' understanding of the primary bodies in the *Timaeus*. Near the beginning of his account of necessity, Timaeus says that no-one has revealed the generation of the primary bodies, but, '[thinking] that we *know* what fire and

⁵⁶ Socrates' use of a hypothetical method is also sketched in the *Phaedo* (100a-b, 101c-e), albeit without explicit reference to geometry. See Chapter 2.4.

⁵⁷ This description has justly aroused much discussion. For analysis, see Cornford 1932, Cherniss 1951, Karasmanis 1990, Burnyeat 2000, Netz 2003, and Benson 2015, ch. 9. For a re-construction of the Divided Line according to the geometrical principles of Plato's day, see Echterling 2018. On *anupothetos*, see Bailey 2006.

each one of them is (*hôs eidosin pur hoti pote estin kai hekaston autôn*), we say that they are starting-points, positing them as “elements” of the universe’ (*Tim.* 48b6-8). The natural philosophers who lie behind this remark in the *Timaeus* make the same error in their investigations into the ultimate constitution of the cosmos as do the mathematicians in the *Republic*. In both cases, the practitioners of the science hypothesise certain key features of their inquiries – oddness and evenness, specific shapes and angles in the case of mathematics, and the primary bodies in the case of natural philosophy – but they assume that they *know* what these entities are and do not inquire further into them (*hôs eidotes* in the *Republic*, *hôs eidosin* in the *Timaeus*). In other words, they do not inspect their own hypotheses but instead take them to be self-evident. In contrast, Timaeus shows exemplary epistemological caution in choosing hypotheses (*hypotheses*), as well as starting-points (*archai*), which are tailored to his own cosmogonic investigation.⁵⁸ For example, after he has implied that it is wrong to regard the primary bodies themselves as starting-points, he immediately goes on to say that the starting-point or starting-points concerning *all* things does not need to be stated because of the present manner of the narration (*Tim.* 48c). Rather, he and his interlocutors should remain committed to the power of producing likely accounts (*Tim.* 48d). Later, in his account of the primary bodies’ generation, he hypothesises the two kinds of right-angled triangle as the starting-point of the primary bodies, but he acknowledges that there may be higher starting-points which are known only to God and those whom God loves (*Tim.* 53c-d). In both of these instances, Timaeus not only grants the existence of other starting-points which can be excluded from his inquiry, but he also chooses starting-points which will assist his account of what were mistakenly regarded as the starting-points by the preceding natural-philosophical tradition, namely the primary bodies. The *Timaeus* thus tacitly corrects the shortcoming which characterised the mathematicians’ methods in the *Republic* and applies Socrates’ guidance to its own natural-philosophical subject-matter.

The *Timaeus*’ presentation of the cosmos as a geometrically intelligible superstructure can also be compared favourably with the *Republic*’s account of the philosophical study of astronomy. For example, Socrates in the *Republic* says that the geometrically trained astronomer will admire the beauty and craftsmanship of the heavenly bodies’ motions and he will infer from them that the cosmos was constructed by a universal demiurge (*Rep.* 529e-

⁵⁸ On the importance of according one’s starting-points (*archai*) to one’s inquiry, see Johansen 2008.

530a). This forges an obvious connection with the *Timaeus*, in which the cosmos is shown to be brought into being by an intelligent demiurge and its beauty is instantiated in mathematical terms.⁵⁹ The *Republic* also distinguishes between the visible motions of the astronomical phenomena and the invisible motions to which they stand in a deficient relation (*Rep.* 529c-d), in a way which might be likened to the *Timaeus*' contrast between the visible motions of the heavenly bodies and the invisible motions of the cosmos' soul. For Socrates goes on to say that various commensurate relations (*symmetriai*) exist in the heavens, such as the relation between night and day, day-night and month, and month and year, in a way which brings to mind the *Timaeus*' account of how various temporal measures are produced from the coordinated motions of the planets. The epistemological emphasis of the two passages is admittedly quite different, but I do not think that this prevents the two contexts from being read alongside each other in a harmonising way.⁶⁰ Finally, the focus given to celestial *symmetriai* as the real object of astronomical study recalls *Timaeus*' description of how God instantiated *symmetriai* into each of the primary bodies, 'as many as and in whatever way it was possible [for them] to be proportional and commensurate' (*Tim.* 69b4-5). Thus, both the *Republic* and the *Timaeus* prioritise the mathematically intelligible aspects of the natural phenomena as the prime target of natural-philosophical investigation.

Further, in light of these connections between the *Republic*'s account of astronomy and the *Timaeus*, the Platonists' comparison of the *Timaeus*' origin-story with geometrical construction can also be seen as inspired by the mathematicising strictures laid down in the *Republic*. In particular, Socrates' prescription to interpret the motions of the heavenly bodies in the same way as geometrical *diagrams* (*diagrammata*, cf. *Rep.* 529e2) corresponds with the Platonists' claim that the *Timaeus*' talk of generation is akin to diagrammatic construction, where the things which correspond to diagrams are the primary bodies. Although I do not want to push this parallel too far⁶¹, it is worth considering what this correspondence amounts

⁵⁹ The inference in the *Republic* that the cosmos is a product of craft because of its supremely beauty and well-wrought nature marks an implicit contrast with the use of the language of action in geometry, which is necessary but also ridiculous in its ontological and epistemological assumptions.

⁶⁰ For a like-minded comparative investigation of the *Republic*'s image of the Cave and the epistemology of the *Timaeus*, see Johansen 2013. As he concludes (2013: 108), 'despite their different emphases, in making the claim that humans can and should learn about being good from the heavens, the two works are of a piece'.

⁶¹ For one thing, Socrates' account of astronomy in the *Republic* is centred on the motions of the *heavenly bodies*, whereas the Platonists' comparison with geometrical diagrams is targeted at the *Timaeus*' account of the *primary*

to in terms of philosophical payoff. In the *Republic*, Socrates bids the motions of the heavenly bodies to be treated as geometrical diagrams in order to investigate the intelligible motions and especially their numerical make-up. What might be the ultimate target of investigation according to the Platonists' analysis of the *Timaeus*? I presume that the ultimate objects of scrutiny would be mathematical principles relating to the solid geometry of the primary bodies, such as the commensurate relations which inhere in and between the four geometrical forms, as well as the more basic geometrical units from which they derive. For this agrees well with the Platonists' own natural-philosophical and metaphysical views as they have been briefly discussed in a previous chapter, in which the bodily aspect of the world is envisioned as generated from higher geometrical principles.⁶² It also fits with the *Laws*' description of generation, which, as we have noted, parallels the account of bodily generation in the *Timaeus* but reports it straightforwardly as a generational sequence. Socrates' later reference to problems in the *Republic*, which looks back to this kind of diagrammatic idealisation of the heavenly motions, also supports the link between this passage and the Platonists' defence, since we have already seen that the use of problems implies a reductive or analytical procedure of the kind which the Platonists discerned in the *Timaeus*. Thus, it is natural to suppose that the Platonists' interpretation of the *Timaeus* was also encouraged by the geometricizing approach to astronomy which is advocated in the *Republic*.

Finally, we can consider the relationship between the Platonists' interpretation of the *Timaeus* and the intra-Academic dispute around the language of problems in geometry. Commentators have often noted a connection between these two issues, without however exploring the exact relation between them.⁶³ To begin with, the early Platonists' defence of the *Timaeus* shares some core features with the 'realist' position of Speusippus and Amphinomus on the ontological status of geometrical objects. Specifically, the emphasis

bodies' generation. However, astronomy in the *Republic* is defined generally as the study of depth in motion (*Rep.* 528a-b, d-e), which suggests that investigation into the primary bodies would also fall under it.

⁶² See Chapter 4.4. above. Such objects might have been discussed in Speusippus' work *On Pythagorean Numbers*, the first half of which is said to have investigated 'linear numbers, polygonal numbers and all sorts of plane numbers, solid numbers and the five figures which are assigned to the elements of the universe, discussing both their individual attributes and their shared features, their proportion and reciprocity' (Pseudo-Iamblichus, *Theo. Arith.* 82 = Speusippus fr. 28 Tarán = fr. 122 Isnardi Parente). Xenocrates is also reported to have identified the cosmos as a mixed epistemological domain on the grounds that 'it is visible by sense-perception but intelligible by means of astronomy', which looks like an allusion to the idealising astronomy of the *Republic* (Sextus Empiricus, *Adv. Math.* 7.147 = Xenocrates fr. 5 Heinze = fr. 2 Isnardi Parente).

⁶³ See e.g. Tarán 1981: 384 and 426, Burnyeat 2000: 41 n. 58, and Kouremenos 2005: 50 n. 3.

which the Platonists place on *knowing* the cosmos' constitutive nature parallels the emphasis given to knowledge in the case of observing the generation of geometrical objects.⁶⁴ This suggests that the early Platonists around Xenocrates ascribed to Plato a similarly 'realist' view on the cosmos as Speusippus and Amphinomus held on the existence of geometrical objects, which makes natural sense if Speusippus was also involved in the interpretation of the *Timaeus*.⁶⁵ However, importantly the two kinds of 'realism' differ inasmuch as the cosmos and geometrical objects are metaphysically different from one another. On the one hand, geometrical objects are invisible and intelligible, so it is natural (as a Platonist) to suppose that they do not admit generation in a practical or productive sense in any way. But on the other hand, the cosmos is not invisible and intelligible, but a bodily, perceptible and so generated compound. Therefore, the kind of everlastingness which may be ascribed to the cosmos is inevitably different from the kind of everlastingness which is possessed by geometrical objects. The kind of everlastingness and *un-generatedness* which an object possesses depends on the nature of the object itself.⁶⁶ Since the early Platonists contended that the cosmos according to the *Timaeus* was not generated from time, the everlastingness which they ascribe to the cosmos is correspondingly temporal in character. Hence, the 'realism' which they attribute to Plato is one grounded in the cosmos' temporal everlastingness, a view which we have seen is directly sourced from the *Timaeus* (cf. *Tim.* 37c-d, 38b-c).

But it is also worth entertaining the possibility that the 'constructivist' viewpoint of Menaechmus is incorporated into the early Platonists' interpretation of the *Timaeus* as well, be it by Xenocrates, Speusippus and Crantor or other thinkers connected with the Platonic Academy.⁶⁷ Menaechmus' position shares with its 'realist' disputant the view that geometrical

⁶⁴ Compare *hôs mallon gnôrizontôn* in Aristotle's report of the Platonists' view (*Cael.* 280a2 = Xenocrates fr. 54 Heinze = fr. 73 Isnardi Parente) and *gnônai* in Simplicius' report (*Comm. De Caelo* 304.7 = Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente) with *gnôstikôs* in Proclus and the references to *gnosis* in *Rep.* 527a10, b4. Speusippus and Amphinomus' language of theorems also parallels the language of observation in Aristotle's report (*theasamenous*, *Cael.* 280a3).

⁶⁵ On the mention of Speusippus in one of the three anonymous Aristotelian scholia on the *De Caelo*, see Chapter 4, n. 34 above.

⁶⁶ This is a salient claim of this thesis as a whole. For its Platonic origination, cf. *Tim.* 37c-e.

⁶⁷ Although I have regarded the early Platonists' interpretation of the *Timaeus* as unitary in this thesis, which agrees with its presentation in the ancient sources, it is possible that different and somewhat competing interpretations were developed by different thinkers and even in different dialectical contexts. See Proclus, *Comm. In Timaeum* 290.3-16, who distinguishes between a 'conceptual' understanding of generation and one which appeals to a didactic motivation, in what may look back to the early Academy.

objects are un-generated and changeless in fact, but it grants to these objects a kind of conceptually generated status as a result of the analytical operations which are performed on them. Correspondingly, in the case of natural philosophy, the early Platonists say that the composite constituents of the cosmos (meaning the primary bodies of fire, air, water and earth) ought to be analysed *in one's mind* (cf. *analogosantē epinoia*) and that the investigator ought to inspect how, *if* the simple parts were by themselves, the composites would have come into being out of them from [a] starting-point (Xenocrates fr. 54 Heinze = fr. 74 Isnardi Parente). This act of imagining the reduction of the primary bodies into their elementary geometrical units, as was conducted in the *Timaeus*' account of the primary bodies' generation, seems to admit a kind of 'constructivism' which is aimed at understanding the constituent features more easily. Moreover, even though the Platonists' apologetic was specifically targeted at the primary bodies' generation, there is nothing in principle which prevents this 'constructivist' attitude from being extended to the entire Timaeian construction-narrative. Such a global 'constructivism' would indeed allow the *Timaeus* to be described as 'a kind of geometrical allegory'.

Conclusion

1. Summary of this thesis' findings

In concluding this thesis as a whole, we can begin by re-stating the three guiding questions which it set out to answer and which were introduced at the beginning:

- (1) Does Plato have a coherent view on the soul's generation and freedom from destruction between the *Timaeus* and other works?
- (2) How does Plato's understanding of the soul's generation and freedom from destruction relate to his understanding of the generation and freedom from destruction of the cosmos?
- (3) How and why did some early Platonists compare the *Timaeus'* account of generation to the construction of diagrams in geometry in the way that they did?

A summary of the thesis' findings can first be given by providing a concrete answer to each of these questions in turn.

The answer to question (1) is Yes. This answer was reached on the joint basis of Chapter 1, which focussed on the nature of soul's immortality between the *Phaedo* and the *Timaeus*, and Chapter 5, which focussed on the nature of soul's generation in the *Timaeus*, the *Phaedrus* and the *Laws*. In Chapter 1, the trick was to see that Plato's alpha-privative adjectives carry a qualified, as opposed to a standard, modal force. In particular, the key-term *athanatos* ('immortal'), which is applied to the soul in both the final argument of the *Phaedo* and the *Timaeus*, does not denote that the soul is *unable* to admit death, but (only) that it *does not* (and *will never*) admit death, and so will not pass out of existence in any way. This same qualified modal force applies to other key-terms, such as *anôlethros* in the *Phaedo's* final argument and *alutos* in the *Timaeus*. In the *Phaedo* Socrates convinces Cebes that soul is free from destruction as well as immortal without the need for further argument by showing that 'the immortal' (*to athanaton*) – understood as a generic reference to the class of things which are immortal – also never admits destruction, citing the examples of God and

the Form of Life. In the *Timaeus*, the soul's immortality as well as its freedom from dissolution were shown to be conditional on the goodness of the demiurge, but also distinguishable from the immortality and freedom from dissolution of the cosmic gods because of the soul's essentially unitary structure. Plato's perspective on the soul's immortality is thus coherent insofar as the nature of immortality remains un-altered between both dialogues (as well as, one would assume, across all of his immortality-proofs).

In Chapter 5, the soul's generation in the *Timaeus* was shown to cohere with its presentation in the *Phaedrus* and the *Laws*. It coheres clearly with the *Laws* because both works explicitly endorse the soul's priority and seniority over the body. But it also coheres naturally with the *Phaedrus* because both works endorse the soul's self-motion and because the soul's description as free from generation (*agenêton*) in that context implies no more than freedom from generation understood as a kind of motion (*kinêsis*), which is the kind of generation admitted by bodies. The generation of the cosmos' soul in the *Timaeus* does not give rise to orderly motion in the natural world as such, but it does result in self-motion, which is the primary and ruling kind of motion in opposition to bodily motions which are dependent on it. Psychic self-motion in the *Timaeus* is understood to be generated from Same and Different as opposing principles of uniformity and differentiation in the soul, while God's teleological contribution is to make this motion circular and so naturally disposed to intelligence. The soul in the *Timaeus* is also 'proto-sempiternalistic' in the sense that it is everlasting in both temporal directions, although it is also generated in a way which coincides (and, at the level of the construction-sequence, even 'precedes') the generation of the cosmos. This temporal everlastingness is assumed in the *Phaedrus* and can also be fitted with the *Laws*, such that the nature of soul's generation remains consistent across the three dialogues (and so Plato's writings as a whole).

This last point provides us with a basis of an answer for question (2) on the relationship of soul's everlastingness to the everlastingness of the cosmos. The answer is that both soul and cosmos are temporally everlasting according to Plato but that the nature of each one's generation (and, in a less obvious sense, their destruction) is particular to the kind of entity that it is. The nature of the cosmos' generation was the central subject of Chapters 3 and 4 and was also discussed towards the end of Chapter 6. In Chapter 3 the cosmos' generation was analysed within a defence of the 'literalism' of the *Timaeus*' origin-story as a whole. Here, I argued, among other things, that the *Timaeus* seems to incorporate into itself one sense in

which the cosmos was *not* generated, namely from (a particular point of) time, by explaining how time comes into being together with the cosmos in order to resemble the everlastingness of the paradigm. The *Timaeus* thus tells the story of our cosmos' generation even though the cosmos is temporally everlasting. I also emphasised that God's initial intervention in the pre-cosmic state of affairs introduced geometrical intelligibility to the primary bodies from their not having any such intelligibility before, and that the account of the primary bodies' generation proceeded analytically rather than through a straightforward construction-narrative.

This had implications for Chapter 4, in which I re-considered the early Platonists' interpretation of the *Timaeus* (and their traditional status as 'non-literal' interpreters). In particular, I argued that the early Platonists' comparison of the *Timaeus*' origin-story with geometrical diagrams was based on an appeal to the *Timaeus*' account of the primary bodies' generation, while their implied view that the cosmos was in fact eternal was consistent with the *Timaeus*' understanding of the cosmos' everlastingness. Insofar as the *Timaeus* can be taken to reflect Plato's position, we can describe Plato's view on the cosmos as 'proto-sempiternalistic', in opposition to Aristotle's full-bodied sempiternalism (in which the cosmos is un-generated unqualifiedly as well as temporally everlasting). Aristotle's objection against the Platonists' defence also revealed the differences between Platonic and Aristotelian modality, since, whereas the Platonists claimed that the cosmos was everlasting but that its bodily constituents were generated because of their (geometrically) composite nature, Aristotle denied that anything (and so *a fortiori* the cosmos) can be generated but also free from destruction. There is thus a close co-ordination in the eternalist nature of both soul and cosmos in Plato's thought, but a distinction can be drawn between the cosmos' generatedness according to the *Timaeus*, on the one hand, and the generatedness of the primary bodies within the cosmos according to the Platonists' own natural-philosophical views, which derive from the *Timaeus*, on the other hand, as well as between both of these and the generation of the soul.

This also provides us with much of an answer for question (3) on the Platonists' comparison of the *Timaeus* to the construction of diagrams in geometry. This issue was addressed in Chapter 4 and Chapter 6. Commentators have traditionally assumed that this comparison committed the Platonists to the view that the cosmos is everlasting in an unqualified temporal sense, whereas some have connected the diagrammatic analogy with

the *Timaeus*' two causal principles of intelligence and necessity from which the cosmos is said to have come into being. However, by looking especially to Simplicius' lengthier report of the Platonists' defence, I argued in Chapter 4 that the Platonists' comparison was centred on the *Timaeus*' account of the primary bodies' generation, which describes the geometrical forms of fire, air, water and earth as composed from two elementary kinds of right-angled triangle. This interpretation fits with the Platonists' own theory of bodily generation as well as their broader metaphysical views from geometrical first principles as they are described elsewhere in Aristotle's *On the Heavens* and the first and final two books of the *Metaphysics*. The *how* part of their comparison is thus explained by the *Timaeus*' account of the primary bodies' generation, rather than the opposition between intelligent and necessary causality or the origin-story format of the *Timaeus* as a whole.

As for the *why*, the answer is that the Platonists wished to defend the cosmos' temporal everlastingness on Plato's behalf, while also highlighting the analysability of its bodily constituents in geometrical terms. In order to understand phenomenal complexity, Platonism responds by reducing plurality to elementary units that stand above demonstration and are distinctively mathematical in character.¹ This is one way of apprehending the discussion of Chapter 6, which explored the relationship between geometry and natural philosophy generally in Plato and in the early Academy. Here, we saw that geometry and natural philosophy are linked in the *Gorgias*, the *Euthydemus* and the *Laws*, while in the *Republic* Socrates prescribes astronomy to pose geometry-like problems about the astronomical phenomena in a manner that focuses one's attention on the mathematical constitution of the heavenly motions. An early Academic debate around the language of problems shows how the *Republic*'s account of the mathematical sciences provoked discussion on the generated status of geometrical objects, which in turn related to discussions on the nature of the cosmos' generation. The Platonists advocate a 'realist' attitude on both

¹ This principle most obviously underlies the *Timaeus*' account of the primary bodies' nature, but is also evident in the soul's composition and the cosmos' astronomical motions. Compare Proclus, *Comm. In Euclid* 179 = Speusippus fr. 73 Tarán = fr. 35 Isnardi Parente: 'Starting-points (*archai*) ought in every case to be superior to the things after the starting-points in regard to their simplicity, their indemonstrability and their self-evident nature. For in general, Speusippus says, of the things which our thought is on the hunt, we project some things and prepare them for the ensuing inquiry without having made any elaborate excursion, and our thought has a clearer contact with them than sight has with visible objects, whereas others it is incapable of grasping immediately and therefore advances on them step-by-step and tries to hunt for them according to their consequences.' The language of hunting recalls *Euthydemus* 290b-c, quoted in Chapter 6.2 above, while the image of the sight of the mind evokes the image of the soul's vision in the *Republic*.

geometrical objects and the cosmos on Plato's behalf, as well as perhaps inviting a kind of 'constructivism' concerning the way its individual components should be understood. Their interpretation of Plato's works is also embedded within the ongoing mathematical activity of the early Academy, which featured the development of heuristic procedures such as analysis, discussions of geometrical terminology, and the axiomatisation and systematisation of mathematical demonstration in a way which would become more established in the period of Euclid.

The distinctive aspect of these three answers, summarised thus, is their close co-ordination and coherence with one another. The soul's generation and non-destruction is linked to the generation and non-destruction of the cosmos, which is in turn linked to the early Platonists' comparison of the *Timaeus*' account with geometrical diagrams. Soul, cosmos and mathematics all come together in the *Timaeus* as essentially connected parts of Plato's thought as a whole. That is why the way that we resolve one interpretive puzzle in the *Timaeus* – such as the modal scope of Plato's alpha-privative adjectives compared with other works, the nature of the third kind and the 'literalism' of the pre-cosmos, or God's 'generation' of the soul's self-motion – both impacts and is impacted by the way that we resolve any number of others. The *Timaeus* is an internally coherent text which also closely connects with other works in the Platonic corpus, so it requires our interpretive responses to emphasise coherence and connectedness in turn. Moreover, just as the *Timaeus* itself applies the explanatory tools of simplification and elaboration, visualisation and abstraction, analysis and synthesis (or construction) in its investigation of the cosmos, as well as a combined focus on the individual and the shared or communal (cf. *to koinon*, *Phd.* 98b), so too it invites those same tools to be applied to the study of *it*. This is what this thesis has tried to do concerning the generation and immortality of soul and the cosmos.

2. The significance of this thesis for future study of the *Timaeus*

Having provided answers to the three stated research questions, I finally consider this thesis' broader significance for future study of the *Timaeus* as a whole. This thesis has tried to break new ground in our appreciation of the *Timaeus*' origin-story, its relationship to other Platonic works and its reception in the early Platonic Academy. Throughout the modern history of scholarship on the *Timaeus*, the question of the origin-story's 'literalism' has remained a live

and contentious area of debate, shaping not only various aspects of the origin-story's interpretation but also the way that it was perceived among Plato's earliest readers. This thesis has shown that the ancient origins of this scholarly conflict are significantly different from the way that they are traditionally understood, so that the long-standing dispute between 'literal' and 'non-literal' points of view can be ultimately resolved in turn. The modern 'literalism' debate is one that has been built on false premises. From now on, the 'literalism' of the origin-story should be basically assumed without doubt or hesitancy, while broader issues relating to it – such as Plato's understanding of the nature of generation, the connections between mathematics, natural philosophy and metaphysics, and the testimonial value of the early Platonists – can all be examined in a fresh light. This should also encourage interpreters to review their understanding of the relationship between the early Platonists and later periods in the history of ancient Platonism, as the *Timaeus*' presentation of the cosmos' generation remained a favourite topic of exegetical debate throughout antiquity.²

This thesis has also drawn several new connections between the *Timaeus* and other Platonic works, advocating a strongly compatibilist picture with regard to Plato's account of the soul, the cosmos, and the significance of mathematics for various areas of philosophical inquiry. Besides the key themes of the soul's generation and immortality, one may also recall my discussions of Plato's understanding of causality and explanation (Chapter 2.2-3), the relation of Forms and images (Chapter 2.4-5), the role of hypothetical inquiry (Chapters 2.4, 4.3, and 6.2 and 6.6), the self-motion of soul and its relationship to body (Chapter 5), and the kinship between geometry and natural philosophy (Chapter 6). In light of this, interpreters should no longer assume that the *Timaeus* portrays an anomalous point of view on a particular issue, compared with other Platonic dialogues, but should be encouraged to see continuities as well as developments between the *Timaeus* and other works. As this thesis also hopes to have underlined, comparative analysis can make one more (not less) attentive to the individual dynamics of a Platonic context and bring to light subtleties of difference and emphasis. In our case, it also reveals the distinctly *Platonic* character of the *Timaeus*' approach to natural philosophy, by showing how the *Timaeus* is not a narrowly natural-philosophical work but one that also reflects on metaphysics and epistemology, ethics, theology and

² See Baltes 1976, the later chapters of Gregory 2007 and Sedley 2007, and Petrucci 2018, ch. 2.

psychology (among other disciplines of study).³ This in turn highlights the integral place of the *Timaeus* within Plato's philosophical writings as a whole.

Lastly, this thesis develops a new and unified account of the *Timaeus*' interpretation within the early Platonic Academy. Modern studies have shown that the thinkers who frequented the Academy – of whom the two most notable are Speusippus and Xenocrates – were not unreflecting adherents of Plato's views, but nor did they detach themselves from his influence and legacy altogether. The spirit of inquiry which characterises Plato's dialogues, and which he himself appears to have fostered among his contemporaries, suggests that the Academy was not an arena of doctrinalist conformity but rather a space in which ideas could be debated, elaborated and revised within a broadly like-minded intellectual community.⁴ We therefore need a different model for understanding the initial reception of Plato's works from that of either early Stoicism (which lacked a single founding father) or the Epicurean tradition (which came to be distinguished by a dogmatic orthodoxy to the founder's word). The dynamics of early Platonism and the role played in it by the *Timaeus* were neither 'Stoic' nor 'Epicurean' in character, but combined an elenctic attitude with a thoughtful attentiveness and respectfulness for the contents of Plato's written works (besides the value that the Platonists presumably also gave to oral discourse and the ideas that, for whatever reason, Plato did *not* write down⁵). This attentive reading practice extends to – and is perhaps even

³ Partly under the influence of the origin-story's 'literalism' controversy, Sarah Broadie has contrasted a 'cosmological' reading of the *Timaeus* with what she calls a 'gateway to metaphysics' approach, in which the principal object of study is not the (construction of the) visible cosmos but the intelligible and incorporeal paradigm. See Broadie 2012: 60-83, at 60-61. I agree with her view that the *Timaeus* is primarily an investigation into visible (and so bodily) nature, but I can see how it also exposes itself to supra-physical interpretations, especially if set alongside other contexts such as the *Republic*. On the demarcation of natural becoming and supra-natural being, see especially *Tim.* 59c-d.

⁴ For studies of early Platonism, see the references listed in the Introduction, n. 9. I am again minded to point to Myles Burnyeat's assessment of 'Platonism' (with inverted commas) as a 'debate', not a 'fixed essence', which I have already quoted twice in this thesis (in the Introduction, n. 11, and Chapter 6, n. 42).

⁵ Plato's so-called 'un-written' views have perhaps sometimes loomed in the background of this thesis, but I have kept them out of the picture and am open to bringing them in on a future occasion. On 20th-century debates around the valuation of such views, see Mann 2006. Aristotle tells us that Plato posited the class of mathematical between Forms and sensibles and that 'the large and the small' and 'the one' were his material and formal starting-points of all things, respectively (*Meta.* A.6, 987b15-988a8), while ancient reports say that, in a public lecture on the good, after discussing mathematics and astronomy Plato stated that '[the] good is one' (Aristoxenus, *Harmonics* 2.1). Yet only whispers of this seem able to be gleaned from the dialogues.

best exhibited by – their interpretation of the *Timaeus*.⁶ So, now that the early Platonists have been revealed as ‘literalists’ of the *Timaeus*’ origin-story, albeit ‘literalists’ of a rather special sort, they can be regarded more seriously and charitably as interlocutors of our own interpretation of the dialogue. As Socrates comments in the *Cratylus* (436d) in the passage quoted as an epigraph of this thesis, having posited the starting-point (*archê*) of investigation into this subject, we should now advance to see what follows from it.

⁶ Consider Crantor’s mathematical analysis of the *Timaeus*’ account of the cosmos’ soul (fr. 11 Mette), Speusippus’ re-conceptualisation of the *Timaeus*’ intelligible paradigm as the Decad (fr. 28 Tarán = fr. 122 Isnardi Parente), and the metaphysical-cum-mathematical debates between various Platonists which are recorded in the final two books of Aristotle’s *Metaphysics*, together with their background in the *Republic*. Sometimes the mathematicising approaches of the early Academy are diagnosed as ‘Pythagorean’, but in this thesis I have chosen to focus only on their Platonic heritage (without commenting on their possible ‘Pythagorean’ associations; see Introduction, n. 7).

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