

**Socrates vs Stephen Hawking**  
**Chad Bochan, Sydney, Jan 2023**

Socrates would have *loved* to have a conversation with the famous cosmologist Stephen Hawking (1942–2018), especially if he heard Hawking claim that ‘philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics’ (Hawking & Mlodinow 2011 Chapter 1: The mystery of being). That would have fired Socrates up! Or if he overheard Hawking asserting that ‘we humans, who are ourselves mere collections of fundamental particles of nature, have been able to come to an understanding of the laws governing us, and our universe, is a great triumph’ (Hawking *et al.* 2020 Chapter “Why we must ask the big questions”)— Socrates would have several things to say about that! What follows is their conversation, sometime in the current century, as I imagine it.

Platonic Greek	Eng. translation	Particles	Other notes
<p><b>Στέφανος, ἢ περὶ τοῦ παντός</b></p> <p style="text-align: center;">* * *</p> <p>ΣΤΕΦ. χάριν γε ἡμῖν, ὦ Σώκρατες, τοῖς σοφοῖς δεῖ ἔχειν.</p>	<p><b>Stephen, or, on the universe</b></p> <p style="text-align: center;">* * *</p> <p>STEPH. You should thank us scientists, Socrates.</p>	<p>γε marking χάριν with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</p>	<p><i>Sub-title:</i> I included a sub-title on the basis of Rijksbaron’s conclusion: ‘I consider it plausible that the earliest written texts of Plato’s dialogues were provided with two titles’ (2007 p. 21). Why did I choose ‘on the universe’ as the sub-title (rather than, say, ‘on knowing oneself’)? Well, <i>Ion</i>’s sub-title is ἢ περὶ Ἰλιάδος ‘or, on the <i>Iliad</i>’: that epic poem was (1) the main focus of <i>Ion</i>’s study, and (2) a topic of discussion in that dialogue. On the same grounds, I chose ‘on the universe’ as the sub-title for this dialogue.</p> <ul style="list-style-type: none"> <li>• <i>Section 1 of 5—‘Exordium’:</i> I refer in the notes to this initial section of the dialogue as the ‘exordium’.</li> <li>• <i>Use of rhetorical terminology:</i> Even though ‘exordium’ is strictly a rhetorical term, I find it useful to break up many other classical texts outside the field of rhetoric (including Platonic dialogues) into e.g. (as here) an exordium, narrative, proposition, argument and peroration,</li> </ul>

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			<p>e.g. Pl. <i>Euthphr.</i> can roughly be divided into an exordium (2a–4c), narrative (4c–e), proposition (4e–5d), argument (5d–15c), and peroration (15c–16a). These sections could be broken up further—e.g. digressions could be marked out as separate sections—but the rough division works well enough.</p> <ul style="list-style-type: none"> <li>• <i>Word order</i>: In the first sentence of any text, all the information is necessarily ‘new’ for the reader, and so I could have used different word orderings here, e.g. if I treated the sentence in ‘broad focus’ (with the emphasis on the whole proposition), the verbs would have been fronted (Emde Boas <i>et al.</i> 2019 sec. 60.22); however, here I wanted to focus on the reference to <i>scientists</i> (this is to provoke Socrates in a way). I therefore open with the ‘new topic’ χάριτι (which opens gratitude as a discourse topic in this exordium), followed by ἡμῖν ... τοῖς σοφοῖς in ‘narrow focus’, placed immediately prior to the verbs (Emde Boas <i>et al.</i> 2019 sec. 60.23).</li> <li>• <i>Hiatus</i>: I allow hiatus here (in γεῖ ἡμῖν and δεῖ ἔχειν), i.e. the clash of vowels at word boundaries. Plato did not seek to avoid hiatus, other than in his later dialogues (<i>Laws</i>, <i>Philebus</i>, <i>Timaeus</i> etc.) (Irwin 1995 p. 12). I don’t incorporate Plato’s innovations in his later dialogues, and so follow his earlier practice of allowing hiatus. The only exception is in my peroration, where (writing in the ‘grand’ style) I avoid hiatus: see my notes in that section below.</li> </ul>

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			<ul style="list-style-type: none"> <li>• ‘<i>Scientists</i>’: For ‘scientists’ I chose a Platonic expression for those who thought celestial objects were material rather than divine: ὑπὸ τῶν σοφῶν τούτων ἀναπεισμένοι ἂν λέγοιεν ὡς γῆν τε καὶ λίθους ὄντα αὐτὰ, Pl. <i>Lg.</i> 886d.</li> <li>• <i>δεῖ vs χρή (and lack of personal pronoun)</i>: One might have thought that <i>χρή</i> ἔχειν (denoting moral obligation) would be better than <i>δεῖ</i> ἔχειν, for ‘<i>χρή</i> and <i>δεῖ</i> are sometimes used synonymously, but in classical Attic there is sometimes a tendency for <i>χρή</i> to denote an obligation related to internal constraints of an ethical nature and <i>δεῖ</i> to imply external constraints’ (Mastronarde 2013 p. 81), but cf. e.g. κομποὶ γὰρ δὴ τινες αὐτὸν τὸν λόγον ἐπιχειροῦσι μηνύειν ἡμῖν, οἷς <i>δεῖ χάριν ἔχειν</i>, Pl. <i>Phlb.</i> 53c; τῷ μηνύσαντι τῆς ἡδονῆς περὶ τὴν γένεσιν μὲν, οὐσίαν δὲ μηδ’ ἠντιοῦν αὐτῆς εἶναι, <i>χάριν ἔχειν δεῖ</i>, Pl. <i>Phlb.</i> 54d. (Incidentally, this last quote is an example of <i>δεῖ</i> used with <i>χάριν</i> where there is no personal pronoun denoting who ought to give thanks, as in my dialogue.)</li> </ul>
ΣΩΚ. τί δὴ, ὦ Στέφανε;	SOC. Why is that, Stephen?	τί δὴ asking a question which the interlocutor should expect: ‘why is that (can you explain yourself)?’ (Sicking 1997 p. 172), (Denniston & Dover 1996 pp. 210–11).	—
ΣΤΕΦ. εἰώθεις γὰρ οὖν τόδε ἐκάστῳ παρακελεύεσθαι, ἑαυτὸν γνῶναι· οὐ γάρ;	STEPH. Well, you used to encourage everyone to know themselves, did you not?	γὰρ οὖν marking this reason with <u>affirmative</u> emphasis (‘really and truly’) (Denniston & Dover 1996 pp. 446–47).	<ul style="list-style-type: none"> <li>• <i>Position of εἰώθεις</i>: Why did I put the finite verb <i>εἰώθεις</i> first? Three reasons: (1) This matches Plato’s use: I searched every use of γὰρ οὖν in ‘classic’ Attic (Plato, the 10 orators and</li> </ul>

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			<p>Thucydides), and the particle combination is typically preceded only by a finite verb, as here (e.g. <u>μέλλω γὰρ οὖν</u> ἅττα ὑμῖν ἐρεῖν καὶ ἄλλα ἐφ' οἷς ἴσως βοήσεσθε, Pl. <i>Ap.</i> 30c; <u>λέγω γὰρ οὖν εἰκότα</u>, Pl. <i>Cra.</i> 421d, <u>εἶχε γὰρ οὖν</u>, Pl. <i>Sph.</i> 219b, etc.), words of necessity (ἀνάγκη, δεῖ, χρῆ, -τέον), or conjunctions/non-lexical words such as καί, οὐ, μή, ὅπως, ὅτι, ἐπειδή, ὥσπερ or the definite article. The only exceptions I spotted were γίγνεσθον γὰρ οὖν, Pl. <i>Sph.</i> 222d; δύο γὰρ οὖν in Pl. <i>Sph.</i> 266c and <i>Lg.</i> 647b; πάντα γὰρ οὖν, Pl. <i>Plt.</i> 306b; εἰκὸς γὰρ οὖν, Pl. <i>Plt.</i> 310c and <i>Lg.</i> 752b; ἕτερον γὰρ οὖν, Pl. <i>Phlb.</i> 27b; ὀρθῶς γὰρ οὖν, Pl. <i>Phlb.</i> 34b; λοιπὸς γὰρ οὖν, Pl. <i>R.</i> 571a; τούτου γὰρ οὖν, Pl. <i>R.</i> 602e; plus some further exceptions in other late works such as <i>Ti.</i> and <i>Lg.</i> There are no examples of cataphoric ὅδε, ἕκαστος or the infinitive (i.e. the other lexical words in my clause here) being fronted before γὰρ οὖν.</p> <p>(2) Using 'old' Greek word order resources, an emphatic verb can be fronted (as here): 'When the verb is emphatic, it often stands first' (Yonge 1870 p. xxxvi). I made a point of using εἰώθεις + infinitive (as in ὥσπερ εἰώθεις ἐξαίφνης ἀναφαίνεσθαι ὅπου ἐγὼ ὤμην ἥκιστα σε ἔσεσθαι, Pl. <i>Smp.</i> 213c), rather than just using the latter verb in an imperfect finite form.</p> <p>(3) Using 'new' Greek word order resources, this whole clause is in 'broad focus' as the verb together with its arguments are all 'asserted'</p>

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			<p>(new) information, in response to Socrates' τί δῆ; question; the general pattern for clauses in broad focus is for the verb to be fronted, followed by the given topic if expressed (not expressed here: it would have been σὺ) and then the remaining arguments (Emde Boas <i>et al.</i> 2019 sec. 60.22). Note that the expression ἐαυτὸν γινῶναι falls outside the 'clause proper' and constitutes a 'tail' in the new parlance (Emde Boas <i>et al.</i> 2019 sec. 60.35).</p> <ul style="list-style-type: none"> <li>• <i>Old vs new classics resources</i>: Why do I use old resources (like Short's essay in Yonge) as well as new ones on Greek word order? I don't think the new replace the old like stock on a supermarket shelf—resources should be weighed, not timestamped. I don't know how word order is taught in the classroom (I'm self-taught: I've never had the chance to enter a classics classroom), but I treat both as 'layers' in a model: the <i>old</i> resources do a great job at laying out patterns based on syntactic criteria, and I treat these like the <i>rules</i> of a chess game (you can move this piece here, but not there). The <i>new</i> resources (pragmatics, topic, focus and the rest) I treat as a separate layer, to guide choices where the 'old' syntactic treatment gives several options (like <i>strategies</i> in a chess game, where several moves are available: some moves are better than others in specific contexts).</li> <li>• <i>Cataphoric τόδε</i>: τόδε referring forwards to the</li> </ul>

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ΣΩΚ. παρεκελευόμην μέντοι νῆ Δία, καὶ ἔτι νῦν ταῦτά ταῦτα παρακελεύομαι.	SOC. By Zeus, I did indeed! And I still encourage the same things now.	μέντοι echoing a previous expression (παρακελεύεσθαι) with <u>assenting</u> force (often with νῆ/μὰ Δία, as here) (Denniston & Dover 1996 pp. 401–2).	<p>following infinitival phrase (cataphoric use) (Emde Boas <i>et al.</i> 2019 sec. 29.29).</p> <ul style="list-style-type: none"> <li>• <i>Pronominal ἐκάστω</i>: ἐκάστω used pronominally to denote each person individually (i.e. distributively: ‘you encouraged X, and Y, and Z, etc.’) (Diggle 2020 s.v. ἕκαστος 1), e.g. οἷα ἂν δοκῆ <u>ἐκάστω</u> τοιαῦτα καὶ εἶναι, Pl. <i>Cra.</i> 386.c</li> <li>• <i>Appositional phrase</i>: Infinitival phrase ἐαυτὸν γνῶναι in apposition to τόδε: cf. ἀλλὰ μὴν καὶ <u>τόδε</u> ὁμολογοῦμεν, μὴ ἄλλοθεν αὐτὸ <u>ἐννενοηκέναι</u>, Pl. <i>Phd.</i> 75a.</li> <li>• <i>Repeated verb</i>: For the repetition of the verb in the present tense after καὶ ἔτι νῦν, cf. τὰ δὲ πληρώματα διὰ τόδε <u>ἐφθάρη</u> τε ἡμῖν καὶ ἔτι νῦν <u>ρθείρεται</u>, Th. 7.13.2; τούτου δὴ ἔνεκα τῆ οὐσία τῆ ἐπ’ ἀμφοτέρα ἐπομένη <u>ᾧμην</u>, εἶπερ ἀμφοτέρὰ ἐστι καλά, ταύτη δεῖν αὐτὰ καλά εἶναι, τῆ δὲ κατὰ τὰ ἕτερα ἀπολειπομένη μὴ· καὶ ἔτι νῦν <u>οἶομαι</u>, [Pl]. <i>Hp. Ma.</i> 302C (Plato’s authorship uncertain).</li> <li>• <i>Rhetorical figure—polyptotic reductio</i>: I’ve used the rhetorical figure of a polyptotic <i>reductio</i>, where the sentence begins and ends with different forms of the same verb (Lausberg 1998 sec. 648 (5)); it is not a forced figure here, as each verb has a natural place in its clause: παρακελευόμην (echoing παρακελεύεσθαι from the previous clause) fronted with μέντοι (as explained to the left); παρακελεύομαι in its natural spot in its own clause, for the object</li> </ul>

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<p>ΣΤΕΦ. ἀλλὰ μὲν δὴ τῷ γε ταῦτα ἐπισταμένῳ καὶ σε διδάξαι ἐθέλοντι πολλὴν χάριν ἂν εἰδείης;</p>	<p>STEPH. And I suppose you would be very grateful to someone knowing these things and willing to teach you?</p>	<ul style="list-style-type: none"> <li>• ἀλλὰ μὲν δὴ marking the next premise in an argument (ἀλλὰ μὲν) with affirmative emphasis (‘really and truly’) (Denniston &amp; Dover 1996 pp. 394–95).</li> <li>• γε marking <u>limitative</u> emphasis (here, the person to whom Socrates will give thanks) (Denniston &amp; Dover 1996 pp. 114–15 n. (2), 140–44).</li> </ul>	<p>regularly precedes the verb ‘in the case of demonstrative pronouns, whether alone or modifying the object’, as here (with ταῦτα modifying the object ταῦτά) (Yonge 1870 p. xxxvii). Using the ‘new’ word order resources, the expression ταῦτά ταῦτα constitutes the narrow focus, being the primary asserted information in this clause, and so it nestles into its customary place before the verb (Emde Boas <i>et al.</i> 2019 sec. 60.22).</p> <ul style="list-style-type: none"> <li>• <i>Potential optative</i>: εἰδείης in potential optative with ἂν in a cautious assertion (Goodwin 1897 secs. 232–39). A condition is suggested contextually, but not actually supplied, by the participles with article used substantively (e.g. ‘if that person does, in fact, teach you’) (Goodwin 1897 sec. 825).</li> <li>• <i>Two participles with single article</i>: τῷ together with the two participles ἐπισταμένῳ and ἐθέλοντι (plus their arguments) form one noun phrase, referring to a single person having both characteristics. It’s hard to find this construction in certain grammars—e.g. Smyth describes this with multiple <i>nouns</i> but not multiple <i>participles</i> (1984 sec. 1143); cf. e.g. ὁ ἔχων ἀδικίαν καὶ μὴ ἀπαλλαττόμενος, Pl. <i>Grg.</i> 478e; τῷ δὴ ὑπὸ ἐπιθυμίας ἀρχομένῳ δουλεύοντί τε ἡδονῆ, Pl. <i>Phdr.</i> 238e.</li> </ul>
<p>ΣΩΚ. πλείστην μὲν οὖν.</p>	<p>SOC. <i>Most</i> grateful, in fact!</p>	<p>μὲν οὖν correcting an expression (here, πολλήν) with a stronger form (here, πλείστην) (Denniston &amp; Dover 1996 pp. 475–76).</p>	<p>—</p>

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<p>ΣΤΕΦ. ἐμοί τ' ἄρα, ὃ Σώκρατες, πλείστην δεῖ ἀποδοῦναι χάριν καὶ τοῖς ἄλλοις σοφοῖς, οἵπερ οὖν καὶ τὰ τοιαῦτα πάντα διαφερόντως ἴσμεν.</p>	<p>STEPH. So then, Socrates, you should be <i>most</i> grateful to me and other scientists—we are the ones who, beyond all others, know all these things.</p>	<ul style="list-style-type: none"> <li>• ἄρα in an objective inference, especially where (as here) the conclusion contains δεῖ or similar (Sicking &amp; Ophuijsen 1993 pp. 102–3), with a conversational nuance (Denniston &amp; Dover 1996 p. 41).</li> <li>• -περ οὖν καί with a relative, asserting as objective reality (here, knowledge of scientists) what has been supposed in the main clause (Denniston &amp; Dover 1996 pp. 421–22).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Hyperbaton</i>: For the word order in <i>πλείστην δεῖ ἀποδοῦναι χάριν</i>, cf. ‘An adjective may be separated from its word to make the adjective or the intervening word emphatic’ (Yonge 1870 p. xvi). This is ‘hyperbaton’, with the modifier <i>πλείστην</i> preceding the head <i>χάριν</i> which ‘involves strong emphasis on the modifier’ (Emde Boas <i>et al.</i> 2019 sec. 60.18), as is appropriate here (since Hawking is echoing the modifier). This hyperbaton respects the syntactic restriction that ‘at least one of the constituents interrupting a discontinuous noun phrase must be the constituent on which the noun phrase depends (Emde Boas <i>et al.</i> 2019 sec. 60.19) (here, the noun phrase is an object of the infinitive <i>ἀποδοῦναι</i>).</li> <li>• <i>Superiority of science</i>: Re. scientific superiority, cf. Hawking’s assertion: ‘Scientists have become the bearers of the torch of discovery in our quest for knowledge.’ (Hawking &amp; Mlodinow 2011 Chapter 1: The mystery of being).</li> </ul>
<p>ΣΩΚ. Ἡράκλεις· οὐκοῦν σὺ δὴ οἶε σαυτὸν γνῶναι;</p>	<p>SOC. By Heracles! So <i>you</i> think you know yourself?</p>	<ul style="list-style-type: none"> <li>• οὐκοῦν for inference from <i>general</i> statement (scientists know all these things) to <i>particular</i> (Hawking knows himself) (Sicking 1997 p. 162).</li> <li>• δὴ with personal pronoun marking statement with <i>affirmative</i> emphasis (‘really and truly’), evident to all (Denniston &amp; Dover 1996 pp. 207–12, 226), (Emde Boas <i>et al.</i> 2019 sec. 59.44), (Sicking &amp; Ophuijsen 1993 pp. 82–83,</li> </ul>	<p>—</p>

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<p>ΣΤΕΦ. οὐ μόνον γε, ἀλλὰ καὶ οἶδα· νῦν μὲν οὖν ταῦτά σοι ἂν ἐνδειξαίμην, εἰ βούλει, ἀλλὰ μέντοι εἴ γε ἀσχολίαν ἄγεις, εἰς αὖθις ἀναλάβωμεν αὐτά.</p>	<p>STEPH. I don't just think so—I <i>know</i> so. Indeed, I could reveal these things to you right now, if you like! But if you're too busy now, let's take them up later.</p>	<p>145–46).</p> <ul style="list-style-type: none"> <li>• οὐ μόνον γε, ἀλλὰ καὶ correcting an expression with a stronger one (Denniston &amp; Dover 1996 p. 3).</li> <li>• μὲν οὖν marking the first element of a contrast with <u>affirmative</u> emphasis ('really and truly') (Denniston &amp; Dover 1996 pp. 473–74).</li> <li>• ἀλλὰ μέντοι ... γε marking the subsequent element of a contrast with <u>determinative</u> emphasis (Denniston does not specifically observe the force of γε here) (Denniston &amp; Dover 1996 p. 410).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Simple condition with potential optative in apodosis</i>: First protasis (εἰ βούλει) in present indicative, expressing a simple supposition relating to Socrates' current desires; for its use with an apodosis in the potential optative, cf.: 'A <u>present</u> or past tense of the indicative in the protasis with a <u>potential optative</u> or indicative (with ἄν) in the apodosis is a perfectly natural combination' (Goodwin 1897 sec. 503(a)).</li> <li>• <i>Simple condition with subjunctive of exhortation in apodosis</i>: Second protasis (εἰ ... ἄγεις) in present indicative, expressing a simple supposition relating to current circumstances; the apodosis may have any form of the verb, including (as here) the subjunctive in exhortation (Goodwin 1897 secs. 402–3).</li> <li>• <i>Position of αὐτά</i>: The information encoded by this word is not focal, as it is 'given' from the previous clauses (it refers to the same information as ταῦτα a little earlier). εἰς αὖθις, instead, is the 'new' assertion in narrow focus (and so precedes the verb); αὐτά thus <i>follows</i> the verb (Emde Boas <i>et al.</i> 2019 sec. 60.26); cf. οἱ δὲ κτησάμενοι διπλῆ ἢ οἱ ἄλλοι ἀσπάζονται αὐτά. Pl. R. 330c.</li> </ul>
<p>ΣΩΚ. ἤδη τοίνυν, ὦ μακάριε, ταύτην με δίδαξον τὴν ἐπιστήμην· οὐ γὰρ πρόποτε εἰς τοσοῦτον</p>	<p>SOC. My dear sir, please teach me this knowledge <i>right now</i>—I've never been too proud to be willing to</p>	<ul style="list-style-type: none"> <li>• τοίνυν with imperative falling <i>before</i> the reason given for the directive (here, in a directive preceding the εὖ γὰρ ἴσθι ... statement) (Sicking &amp; Ophuijsen 1993 p. 153).</li> <li>• γὰρ marking a reason (Denniston &amp; Dover</li> </ul>	<ul style="list-style-type: none"> <li>• <i>'To such a degree that'</i>: For the construction εἰς τοσοῦτο (or τοῦτο) with genitive of measure ('to such a degree of...') followed by a result clause, cf. (Smyth &amp; Messing 1984 sec. 1325).</li> <li>• <i>Rhetorical figure—restitutio</i>: In this sentence</li> </ul>

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μεγαλοφροσύνης ἦλθον ὥστε μήτε ἐθελῆσαι παρ' ἄλλων μαθεῖν, μήτε τῷ διδάξαντι ἀποδοῦναι χάριν.	learn from others, or to thank whoever has taught me.	1996 pp. xlix, 58–68).	concluding the exordium, I echo (in a polyptotic use) several of the words used previously in the section (διδάξαί, διδάζον; ἐθέλοντι, ἐθελῆσαι; etc.), finishing with an echo of the word from which the section began (χάριν), as a sort of extended <i>redditio</i> rhetorical figure (Lausberg 1998 sec. 625), to give a sense of rounding off the exordium.
ΣΤΕΦ. καὶ μὴν, ὃ Σώκρατες, πολλὰ δὴ καὶ θαυμάσια ἠύρηκαμεν οἱ σοφοὶ ἡμεῖς, οὐ μὴν ἀλλὰ μιᾷ γε μεθόδῳ χρώμενοι μόνον.	STEPH. OK then, Socrates: we scientists have made many wonderful discoveries. But we've done this using just one single method:	<ul style="list-style-type: none"> <li>• καὶ μὴν where a person 'who has been invited to speak [here, Hawking] expresses by the particles his acceptance of the invitation' (Denniston &amp; Dover 1996 pp. 355–56).</li> <li>• δὴ marking <i>intensive</i> emphasis with an adjective admitting more or less (here, πολλὰ) (Denniston &amp; Dover 1996 p. 204), (Sicking &amp; Ophuijsen 1993 p. 143).</li> <li>• οὐ μὴν ἀλλὰ ... γε marking an element contrary to the expectation created by the previous element (here, one may think that scientists discovered many things using many methods, but in fact...), and γε marking μιᾷ with <i>determinative</i> emphasis (Denniston &amp; Dover 1996 pp. 28–29).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Section 2 of 5—'Narrative'</i>: I refer in the notes to this second section of the dialogue as the 'narrative' (Hawking describing scientific method and the origin of the cosmos down to the formation of humans as compounds of particles emitted by supernovae).</li> <li>• <i>'Many wonderful'</i>: I connect these adjectives with καί, following 'the Greek habit of linking πολλός to a qualitative epithet by καί' (Denniston 1952 p. 63). Incidentally, one picks up the same habit of connecting 'many' with another adjective when writing <i>Latin</i> prose: 'In English we join the adjective <i>many</i> with another adjective, "many excellent men." In Latin we should insert a conjunction: <i>homines multi optimique</i>' (Arnold <i>et al.</i> 2006 sec. 56).</li> <li>• <i>Word order</i>: The expression πολλὰ ... καὶ θαυμάσια is in narrow focus, and so sits before the verb; οἱ σοφοὶ ἡμεῖς, on the other hand, is given information (predictable from the discussion above plus the first person plural verb ending), and so sits after the verb (Emde Boas <i>et al.</i> 2019 sec. 60.26).</li> </ul>

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ὄσῳ μὲν γὰρ ἂν ἅπερ ὑπεθέμεθα ὡς ἀληθῆ ὄντα ταῖς γ' ἐμπειρίας βασανισθέντα μᾶλλον βεβαιῶται, τοσοῦτῳ μᾶλλον εἰκὸς ταῦθ' ἡγούμεθα εἶναι,	for we judge the probability of our hypotheses depending on the extent to which they have been confirmed experimentally,	<ul style="list-style-type: none"> <li>• μὲν marking the first element of a contrast (Denniston &amp; Dover 1996 pp. xlii, 369–84).</li> <li>• γὰρ marking a reason (Denniston &amp; Dover 1996 pp. xlix, 58–68).</li> <li>• -περ with a relative, marking the limitation of the relative clause's applicability to the following words ('precisely which'), i.e. here to the hypotheses (Emde Boas <i>et al.</i> 2019 sec. 59.55).</li> <li>• γε marking <u>limitative</u> emphasis (here, testing the assumptions by means of experiments, rather than in any other way) (Denniston &amp; Dover 1996 pp. 114–15 n. (2), 140–44).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Correlatives</i>: ὄσῳ ... τοσοῦτῳ correlative formula (each containing a comparative, here μᾶλλον) representing <i>direct proportion</i> (Donovan 1921 sec. 36).</li> <li>• <i>General conditional relative</i>: ὄσῳ ... ἂν with subjunctive, used for a general conditional relative sentence following a primary tense (here, 'whichever of our hypotheses are confirmed...') (Goodwin 1897 sec. 532).</li> <li>• <i>Abstract / verbal noun in English</i>: ἅπερ ὑπεθέμεθα ὡς ἀληθῆ ὄντα for 'hypotheses', following Donovan's injunction that a neuter relative clause is often the best rendering of many English abstract / verbal nouns (Donovan 1921 sec. 27). Donovan's work is like a marvellous bazaar of Greek idiom; one gets lost, but stumbles upon value everywhere.</li> <li>• <i>No assimilation of mood</i>: Verb in ἅπερ ὑπεθέμεθα depending on subjunctive βεβαιῶται not assimilated to the subjunctive mood, as it is not a conditional relative marking the <i>future</i> (like ὄσῳ ... ἂν), but instead the <i>past</i>, and so stays in the indicative (Goodwin 1897 sec. 561).</li> </ul>
ἀλλ' οὖν δὴ καὶ τᾶλλα χαίρειν ἐῶμεν καὶ τὰ τῶν φιλοσόφων μάταια.	and we ignore everything else— <i>especially</i> the empty studies of philosophers.	ἀλλ' οὖν δὴ marking the subsequent element of a contrast, with <u>affirmative</u> emphasis ('really and truly') (Denniston & Dover 1996 p. 445).	<ul style="list-style-type: none"> <li>• <i>Circumflex in τᾶλλα</i>: For the accentuation of τᾶλλα (= τὰ ἄλλα following crasis), the circumflex results from the rule that where 'the crasis results in a trochee with an accented penultimate, the word is perispomenon', although there is some doubt around the rule (Chandler 1881 secs. 924–31), (Probert 2003</li> </ul>

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παγκάλως γοῦν τὸ τοῦ Εὐριπίδου δοκεῖ λέγεσθαι, ὡς ἄρα	One of Euripides’ quotes makes the point splendidly:	<ul style="list-style-type: none"> <li>• γοῦν marking a combination of οὔν denoting an inference and γε marking <u>determinative</u> emphasis (here, applied to <i>παγκάλως</i>) (Denniston &amp; Dover 1996 pp. 456–57).</li> <li>• ἄρα marking that the following words are an actual quote, after a verb of speaking (here, <i>λέγεσθαι</i>) (Denniston &amp; Dover 1996 p. 39), (Sicking &amp; Ophuijsen 1993 p. 110).</li> </ul>	<p>sec. 81).</p> <ul style="list-style-type: none"> <li>• <i>Substantivised adjective</i>: μάταια with the article forms a substantive (Emde Boas <i>et al.</i> 2019 sec. 28.24–25). I omit a substantive for ‘studies’: as Denniston notes on Greek prose style, in many cases ‘the sense conveyed by the abstract substantive in English is <i>left in Greek to be supplied by the imagination</i>’ (1952 p. 27).</li> <li>• <i>Status of philosophy</i>: Re. the ‘empty studies’ of philosophers, cf. Hawking’s assertion that ‘philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics.’ (Hawking &amp; Mlodinow 2011 Chapter 1: The mystery of being).</li> </ul> <p><i>Which character said it?</i>: It’s not quite clear (given the fragmentary state of Euripides’ <i>Antiope</i>) which character said the quoted words: ‘on peut attribuer le fragment aussi bien à Antiope qu’au pâtre ... de sorte que les éditeurs ont choisi l’une ou l’autre possibilité’ (López Cruces 2021 p. 292). I therefore used the generic τὸ τοῦ Εὐριπίδου (cf. τὸ τοῦ Αἰσχύλου, Pl. <i>R.</i> 550c).</p> <p><i>Source</i>: Quote from Euripides, <i>Antiope</i>, fragment 206.</p>
‘ὅς δ’ εὐγλωσσία νικᾷ, σοφὸς μὲν, ἀλλ’ ἐγὼ τὰ πράγματα κρείσσω νομίζω τῶν λόγων ἀεὶ ποτε.’	‘he who conquers by eloquence is clever, but I have always considered facts greater than words.’	—	
ἀλλ’ οὔν, φαίη τις ἄν, τί ποθ’ οἱ σοφοὶ ταύτη	‘So then,’ I imagine someone will ask, ‘just	ἀλλ’ οὔν marking a shift back to the main topic (i.e. Hawking teaching Socrates to know himself),	<i>Use of perfect infinitive</i> : The perfect infinitive ἀνηρηκέναι in indirect discourse after

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ἀνηυρηκέναι δυσχυρίζονται;	<i>what are</i> these discoveries which scientists claim to have made in this manner?’	‘a break-off in thought, a resumption of the main issue’ (Denniston & Dover 1996 pp. 443–44).	δυσχυρίζονται represents a perfect indicative of direct discourse (Goodwin 1897 sec. 122); the ‘completed’ aspect expressed by the perfect form seems particularly appropriate for scientific discoveries, whose effects remain relevant at the time denoted by δυσχυρίζονται (Emde Boas <i>et al.</i> 2019 sec. 33.34, 51.26).
τόδε μὴν εἶπομι’ ἄν, ὅτι κατ’ ἀρχὰς ἐγένετο τὸ πᾶν οὐθ’ ὑπ’ οὐδενὸς γεννηθέν, οὐτ’ οὐδενὸς ἔνεκα.	Here’s how I’d respond: in the beginning, the universe came into being without having been produced by, or because of, <i>anything</i> .	μὴν marking a shift from the statement of a problem (here, what have scientists discovered?) to the discussion of it (Denniston & Dover 1996 p. 337).	<ul style="list-style-type: none"> <li>• οὐτε ... οὐδενός: Multiple negatives applying to the same predicate do not cancel each other out unless the second is a simple negative (which is not the case here) (Emde Boas <i>et al.</i> 2019 sec. 56.3). It would be incorrect English to say ‘neither produced by <i>nothing</i> nor because of <i>nothing</i>’ where the meaning is ‘neither produced by <i>anything</i> nor because of <i>anything</i>’—Greek differs here.</li> <li>• <i>Word order</i>: I used the ‘new’ word order resources to think through the most natural way to write the main clause after ὅτι. κατ’ ἀρχὰς ... begins as the ‘setting’, describing the time for the event in the main clause (Emde Boas <i>et al.</i> 2019 sec. 60.32); the rest of the clause is in broad focus (as it responds to the general question that Hawking just posed to himself, τί ποθ’ οἱ σοφοὶ ταύτη ἀνηυρηκέναι δυσχυρίζονται;) and so the verb comes first, followed by the given topic, then the remaining arguments (Emde Boas <i>et al.</i> 2019 sec. 60.22).</li> </ul>
ΣΩΚ. τί δέ; ἢ χωρὶς αἰτίου γε φῆς γενέσθαι τὸ πᾶν;	SOC. <i>What?</i> Are you really claiming that the universe came into	<ul style="list-style-type: none"> <li>• τί δέ; suggesting surprise, and usually (as here) followed by another question (Denniston &amp; Dover 1996 p. 175), (Rijksbaron 2007 p. 252),</li> </ul>	<i>Use of aorist infinitive</i> : The aorist infinitive γενέσθαι in indirect discourse represents the aorist indicative in direct discourse (here,

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	being <i>without a cause</i> ?	(Sicking 1997 p. 171). <ul style="list-style-type: none"> <li>• ἤ marking <u>affirmative</u> emphasis in a question, suggesting the answer: ‘Is it really and truly the case that ...?’ (Denniston &amp; Dover 1996 pp. xxxviii, 283).</li> <li>• γε marking αἰτίου with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> </ul>	ἐγένετο) (Goodwin 1897 sec. 126).
ΣΤΕΦ. φημί γὰρ οὖν. εἰ γὰρ τοι δι’ ἄλλο τι ἐγεννήθη, ἐν χρόνῳ ἂν ἐκεῖνο ὑπῆρξεν ἵνα τοῦτο ἐγέννησεν, ἀλλ’ ἀδύνατον, ὃ φίλε· ἅμα γοῦν τῷ παντί ἐγένετο αὐτό, ὁ χρόνος, πρότερον δ’ οὔ.	STEPH. I am indeed. For you see, if the universe was created due to something else, then that other thing would have <i>already existed</i> in time, in order to produce the universe. But that’s impossible, my friend: <i>time itself</i> came into being together with the universe, not before.	<ul style="list-style-type: none"> <li>• γὰρ οὖν in an assenting response, marking the echo of φημί from the question and <u>affirmative</u> emphasis (‘really and truly’) (Denniston &amp; Dover 1996 p. 418).</li> <li>• γάρ marking a reason (Denniston &amp; Dover 1996 pp. xlix, 58–68).</li> <li>• τοι denotes ‘you know’, ‘you see’ etc., but with γάρ (as here) marks little more than (<u>determinative</u>) emphasis (Denniston &amp; Dover 1996 p. 537).</li> <li>• γοῦν here marking a ‘part proof’, i.e. a reason only supporting the preceding text in the limited case considered (here, time’s origin supporting the impossibility of the universe’s origin having a cause) (Denniston &amp; Dover 1996 pp. 451–53).</li> <li>• δέ marking a ‘balancing adversative’, i.e. an element contrasting with the previous one (‘adversative’) where both propositions are true (‘balancing’); the first element need not be marked with μέν (Denniston &amp; Dover 1996 pp. 165–67).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Position of φημί</i>: This word is fronted because it echoes a form of the same verb in the question (as marked by γὰρ οὖν, noted to the left). This identical construction occurs with the same verb several times in Plato, e.g. <i>Grg.</i> 466e: μὰ τὸν—οὐ σύ γε, ἐπεὶ τὸ μέγα δύνασθαι ἔφης ἀγαθὸν εἶναι τῷ δυναμένῳ. — φημί γὰρ οὖν.</li> <li>• <i>Past counterfactual</i>: ἂν with aorist denoting potential <i>indicative</i>, marking here a past counterfactual apodosis (Goodwin 1897 sec. 248); the aorist in protasis and apodosis is primarily aspectual (here, expressing the moment of creation), but in practice usually refers to what would have occurred in the <i>past</i> (also the case here) (Emde Boas <i>et al.</i> 2019 sec. 49.11).</li> <li>• <i>‘In time’</i>: For ἐν χρόνῳ expressing ‘in time’, cf. ἄρ’ οὖν οὐδὲ ἐν χρόνῳ τὸ παράπαν δύναται ἂν εἶναι τὸ ἔν, εἰ τοιοῦτον εἴη; <i>Pl. Prm.</i> 141a.</li> <li>• ἐκεῖνο, τοῦτο ‘<i>the more remote in time, the nearer in time</i>’: ἐκεῖνο expressing the (hypothetical) cause of the universe, necessarily more remote in time than the universe itself</li> </ul>

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καὶ μὲν δὴ καὶ ὅθεν γ' ἐγένετο τὸ πᾶν, ἐντεῦθεν πανταχοῖ τε ἤρξετο καὶ ἀμηχάνως ὡς ταχύ·	And then the universe expanded in all directions from that single point, with unbelievable speed—	<ul style="list-style-type: none"> <li>• καὶ μὲν δὴ (καί) in its <u>progressive</u> use (marking the next step in a time sequence, here straight after the big bang) with δὴ marking (I believe) <u>affirmative</u> emphasis ('really and truly'); several of the Platonic examples καὶ μὲν δὴ καὶ are followed by γε marking <u>determinative</u> emphasis (as here, emphasising the point from which the universe expanded) (Denniston &amp; Dover 1996 pp. 396–97).</li> <li>• τε ... καί in its corresponsive use (Denniston &amp; Dover 1996 pp. 511–13).</li> </ul>	<p>(τοῦτο): cf. (Diggle 2020 s.v. ἐκεῖνος 5).</p> <ul style="list-style-type: none"> <li>• <i>ἵνα with past indicative</i>: ἵνα ... ἐγέννησεν with verb in secondary tense of <i>indicative</i> to express unaccomplished purpose after counterfactual construction; here, in <i>aorist</i> to express unaccomplished purpose in <i>past</i> time (Goodwin 1897 sec. 333).</li> <li>• <i>Neuter αὐτό in apposition</i>: αὐτὸ ... ὁ χρόνος: 'The Neuter Singular of adverbs is used peculiarly in Apposition to express the essential nature of a thing' (Riddell 1867 sec. 47 app. B), e.g. τί ποτ' ἐστὶν αὐτό, ἢ ἀρετή, Pl. <i>Prt.</i> 360e. This reflects (I believe) Hawking's position, including the Hartle-Hawking 'no boundary' proposal, e.g. 'You can't get to a time before the Big Bang because there was no time before the Big Bang. We have finally found something that doesn't have a cause, because there was no time for a cause to exist in' (Hawking <i>et al.</i> 2020 Chapter 1: Is there a God?).</li> <li>• <i>Immediative imperfect</i>: ἤρξετο in the 'immediative imperfect', which 'expresses the idea that the state of affairs [here, the expansion of the universe] was realized <i>straight away</i> following another state of affairs [here, the universe coming into being]' (Rijksbaron 2006 p. 17). The imperfect also captures the aspect of the <i>course</i> of the universe's expansion, rather than its mere occurrence (Goodwin 1897 sec. 35).</li> <li>• <i>Strong adjective in English</i>: ἀμηχάνως ὡς ταχύ</li> </ul>

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			<p>where the ‘exclamational character’ of ὡς enables it to express <i>degree of intensity</i> which in English is mostly rendered by strong epithets [here, ‘unbelievable’] or by substantives’ (Donovan 1921 sec. 15).</p> <ul style="list-style-type: none"> <li>• <i>Cosmic inflation</i>: For the rapid expansion of the universe described here (‘inflation’) cf e.g.: (Hawking &amp; Mlodinow 2011 Chapter 7: The apparent miracle).</li> </ul>
τάχιστα μὲν γε δὴ φησι τὴν Ἥραν Ὅμηρος πέτεσθαι δύνασθαι, λέγων ὅτι	by way of comparison, Homer describes Hera’s ability to fly very quickly, saying that:	μὲν γε δὴ marking the first element of a contrast, with γε marking <i>τάχιστα</i> with <u>determinative</u> emphasis and δὴ <u>affirmative</u> emphasis (‘really and truly’) (Denniston & Dover 1996 pp. 161, 246).	<i>Absolute use of superlative</i> : <i>τάχιστα</i> expressing ‘very’ in its absolute construction (‘very quickly’) rather than relative (‘quickest’) (Dickey 2016 p. 139).
‘ὡς δ’ ὅτ’ ἂν αἴξει νόος ἀνέρος, ὅς τ’ ἐπι πολλὴν γαῖαν ἐληλουθῶς φρεσὶ πευκαλίμησι νοήσῃ ἔνθ’ εἶην ἢ ἔνθα, μενοινήησὶ τε πολλά, ὧς κραιπνῶς μεμαῦτα διέπτατο πότνια Ἥρη’·	‘Quick as a thought goes flashing through a man who’s traveled the world—“Ah to be there, or there!”— as his mind swarms with journeys, fresh desires— so quick in her eager flight flew noble Hera now’—	—	<i>Source</i> : Quote from Hom. <i>Il.</i> 15.80–83 (Fagles translation).
ἀλλὰ μέντοι θᾶπτόν γε ἠϋξήθη τότε τὸ πᾶν.	and yet the universe expanded <i>even faster</i> at that time.	ἀλλὰ μέντοι ... γε marking the subsequent element of a contrast, with γε marking θᾶπτόν with <u>determinative</u> emphasis (Denniston & Dover 1996 p. 410).	—

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ἐγεννήθη δὴ ἄστρα, ἃ καὶ ἀνὰ τὸ σκοτεινὸν ἐξέλαμπεν·	Next, stars formed, shining in the darkness.	<ul style="list-style-type: none"> <li>• δὴ marking the next event in a temporal sequence or narrative (Denniston &amp; Dover 1996 p. 238).</li> <li>• καὶ marking <u>determinative</u> emphasis, which here ‘emphasises the fact that the relative clause contains an addition to the information contained in the main clause’ (Denniston &amp; Dover 1996 pp. 294–95).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Formation of stars</i>: For the formation of stars in denser and hotter regions of the expanding universe, cf.: ‘Regions in which the density was slightly higher than average would have had their expansion slowed down by the gravitational attraction of the extra mass. Eventually, such regions would stop expanding and collapse to form galaxies, stars and beings like us’ (Hawking 2008 p. 165).</li> <li>• <i>Rhetorical feature—ἐπιφώνημα</i>: The relative clause is an ἐπιφώνημα, an ornamental expression, adding ornament and beauty (here, to brighten the otherwise rather heavy scientific narrative: also why I added the quotes from Euripides and Homer in the narrative) (Demetrius 2002 sec. 106).</li> <li>• <i>Word order</i>: The main clause is in broad focus, and so the verb comes first (Emde Boas <i>et al.</i> 2019 sec. 60.22).</li> </ul>
ἐπειδὴ οὖν ταῦθ’ οὕτως ἐκλάμπαντα θερμότερα γένοιτο ἢ ὥστ’ ἐν τῇ αὐτῇ ἔξει διαμένειν, ἐκραγέντα ἐξίει εἰς τὸ καλούμενον κενὸν μέρη πολλὰ καὶ παντοῖα, καὶ δὴ ἐκ τούτων καὶ πυκνουμένων τὰ ἐνθάδε πεποιήται πάντα.	Whenever those shining stars became too hot to maintain their same state, they exploded, projecting into the so- called ‘void’ many different types of particles. Everything here on Earth has been made out of the condensation of those particles.	<ul style="list-style-type: none"> <li>• οὖν marking the next event in a temporal sequence, where a word is echoed from a previous event in the sequence (here, ἐξέλαμπεν, ἐκλάμπαντα) (Denniston &amp; Dover 1996 pp. 425–26), (Sicking &amp; Ophuijsen 1993 pp. 90–93), cf. Pl. <i>Phd.</i> 59e7–60a2 (εἰσιέναι, εἰσιόντες).</li> <li>• καὶ δὴ ... καὶ marking the next event in a temporal sequence with <u>affirmative</u> emphasis (‘really and truly’) (Denniston &amp; Dover 1996 pp. 249–50).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>General temporal clause in past time</i>: ἐπειδὴ with optative, followed by a main clause with an imperfect verb expressing a general conditional temporal sentence in past time (Goodwin 1897 secs. 514, 532); the optative with ἐπειδὴ is in the <i>aorist</i> to denote time prior to the main clause (‘whenever X happened, Y afterwards used to happen’) (here, once thermal runaway occurred in stars, supernovae then followed) (Goodwin 1897 sec. 95).</li> <li>• <i>Participle echoing previous word</i>: ἐκλάμπαντα here (echoing ἐξέλαμπεν from the previous</li> </ul>

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			<p>clause) is an example of a figure which Denniston describes: ‘a participle often picks up a preceding verb in Herodotus and Plato ... The participle is normally aorist [as here], marking temporal progression ... The repeated words are either juxtaposed, or separated by a narrow interval’ (1952 p. 95).</p> <ul style="list-style-type: none"> <li>• <i>‘Too X to...’</i>: θερμότερα ἢ ὥστ’ ἐν τῇ αὐτῇ ἐξεί διαμένειν is how I express ‘thermal runaway’, the process of uncontrolled nuclear fusion leading to supernovae. For the construction of comparative with ἢ ὥστε, see (Donovan 1921 sec. 74), e.g. ἡγησάμενος ἑμαυτὸν τῷ ὄντι <u>ἐπιεικέστερον</u> εἶναι <u>ἢ ὥστε</u> εἰς ταῦτ’ ἰόντα σφύεσθαι, Pl. <i>Ap.</i> 36b–c.</li> <li>• <i>Position of ἐξίει</i>: For the fronting of ἐξίει, according to the ‘old’ word order resources: ‘When the verb is emphatic, it often stands first, the subject and object following, the more emphatic commonly last’ (Yonge 1870 p. xxxvi). According to the ‘new’ word order resources, the clause is in broad focus (the focus is broadly on the emission of particles, rather than any particular word), so that the verb comes first, followed by its objects (if ἄστρα were expressed here, it would have fallen straight after the verb as the given topic) (Emde Boas <i>et al.</i> 2019 sec. 60.22).</li> <li>• <i>Exploding stars emitted particles</i>: ἐξίει has ἄστρα as its understood subject. I asked myself, is that right? Once stars exploded, could ‘they’</li> </ul>

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			<p>be said to have emitted particles (rather than putting the verb in the passive, ‘particles were emitted’)? From my reading of Hawking’s books and other cosmology resources for this enjoyable composition exercise for <i>Antigone</i>, in the breaks between the summer cricket and tennis (yes, it’s summer down here in Sydney), it seemed so: a supernova is (I understand) a stage in the evolution of a star of a certain type (rather than something occurring at the total destruction of the star). Hence the active voice.</p> <ul style="list-style-type: none"> <li>• <i>‘So-called’ void</i>: I describe the void (i.e. the interstellar medium) as ‘so-called’ (τὸ <u>καλούμενον</u> κενόν), not referring to the ancient debate between e.g. Eleatics and atomists as to whether the void exists (Guthrie 1995 p. 279), but because quantum theory specifies (as I understand) that space cannot be truly empty, for that would violate the uncertainty principle (Hawking <i>et al.</i> 2020 Chapter 6: Is time travel possible?); instead, ‘what we think of as empty space is full of particles moving in closed loops in space and time’ (Hawking <i>et al.</i> 2020 Chapter 7: Will we survive on earth?).</li> <li>• <i>‘Particles’</i>: μέρη for ‘particles’, cf. τὰ δ’ ἐκ μειζόνων <u>μερῶν</u> σώματα, Pl. <i>Ti.</i> 64e.</li> <li>• <i>Adjectives after noun</i>: For the word order in μέρη πολλὰ καὶ παντοῖα, cf. ‘If a noun be modified by two or more adjectives, the noun is regularly put first’; for the clause-final position of πάντα, an adjective may be placed at clause</li> </ul>

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<p>ὄρα ἄρα, ὃ Σώκρατες, ὅτι ὥσπερ ὁ φοῖνιξ ἐκ τῆς τέφρας γίγνεσθαι λέγεται, οὕτως καὶ ἀτεχνῶς τοιοῦτός ἐστιν ἄνθρωπος οἷος ἐκ τῶν μερῶν ἐκείνων συγκεῖσθαι ἅπερ ἄστρα ἐκραγέντα ἐξῆκεν, καὶ δὴ καὶ πῶς αὐτὸς γέγονεν παντὶ τρόπῳ ἐπισκέψασθαι.</p>	<p>You see then, Socrates, that just as the phoenix is said to come into being out of burnt ashes, so too a human being is simply a composite of those particles which exploding stars emitted—a composite who investigates their own origin in every way.</p>	<ul style="list-style-type: none"> <li>• ἄρα marking an inference bullet (Denniston &amp; Dover 1996 p. 1), denoting that the inferred conclusion is objectively required by the supporting evidence, regardless of anyone’s subjective commitment to that conclusion (Emde Boas <i>et al.</i> 2019 sec. 59.42), (Sicking &amp; Ophuijsen 1993 pp. 82–3, 86, 112–14, 139).</li> <li>• I have not used any connective particle with ὥσπερ, for “explanatory” asyndeton is Plato’s regular usage where he adds a comparison to illustrate his meaning, e.g. <i>Rep.</i> 413D ὥσπερ τοὺς πῶλους ... οὕτω’ (Dodds 1990 p. 193).</li> <li>• -περ with a relative, marking the limitation of the relative clause’s applicability to the following words (‘precisely which’) (Emde Boas <i>et al.</i> 2019 sec. 59.55).</li> <li>• καὶ δὴ καὶ marking a new point with <u>affirmative</u> emphasis, denoting ‘and actually, and in fact’ (Denniston &amp; Dover 1996 p. 250).</li> <li>• τοιγάρτοι marking a conclusion with <u>affirmative</u> emphasis (‘really and truly’) (Denniston &amp; Dover 1996 pp. 566–68).</li> </ul>	<p>end ‘if particularly emphatic’ (Yonge 1870 p. xvi) (both quotes). Denniston confirms this, noting that ‘in certain cases an emphatic word is placed at the end of a sentence or clause, and gains added emphasis from that position. Deprive the emphatic word of its end-position, either by transposition or by tacking on more words at the end, and the rhetorical effect is gone’ (1952 p. 45).</p> <ul style="list-style-type: none"> <li>• ‘<i>Such as to</i>’: τοιοῦτος ... οἷος with infinitives (x2) for a result clause (‘such as to ...’) (Emde Boas <i>et al.</i> 2019 sec. 46.10).</li> <li>• πῶς: In an indirect question, the interrogative of a direct question may be retained (as here and elsewhere throughout the dialogue) (Smyth &amp; Messing 1984 sec. 2664).</li> <li>• <i>αὐτός before verb</i>: For the word order in πῶς <u>αὐτὸς</u> γέγονεν, cf. ‘[αὐτός] commonly stands before or near the verb’ (Yonge 1870 p. xvii).</li> <li>• <i>We are just particle compounds who investigate our origins</i>: For the idea asserted here, cf. Hawking: ‘the fact that we humans, who are ourselves mere collections of fundamental particles of nature, have been able to come to an understanding of the laws governing us, and our universe, is a great triumph’: (Hawking <i>et al.</i> 2020, “Why we must ask the big questions”).</li> <li>• <i>Future more vivid</i>: ὅς ἄν with subjunctive expressing a future more-vivid condition, with the verb in the main clause in the future</li> </ul>
<p>τοιγάρτοι ἐαυτὸν γε γνώσεται ὃς ἄν ταύτη εἰδῆ οἷος ἦν. ἐκείνην</p>	<p>Therefore, whoever knows their own nature in this way will also</p>		

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οὖν, ὃ φίλε, τὴν ἐπιστήμην, ἧς σὺ δὴ καὶ πολλὰ ἔτη σφόδρα ἐπιθυμεῖς τυχεῖν, παρ' ἐμοῦ εἴληφας.	<i>know themselves</i> —and as a result, my friend, you've now received from me that knowledge which you've so desired to obtain for many years.	<ul style="list-style-type: none"> <li>• γε marking ἐαυτόν with determinative emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> <li>• οὖν marking an inference from a general statement (here, whoever knows their own nature as a composite of particles from stars will know themselves) to a particular case (here, Socrates now knows himself) (Sicking &amp; Ophuijsen 1993 pp. 98–100).</li> <li>• δὴ marking the personal pronoun σύ with <u>affirmative</u> emphasis ('really and truly') (Denniston &amp; Dover 1996 pp. 207–12, 226).</li> <li>• καί marking <u>intensive</u> emphasis with a quantitative adjective (here, πολλά), where καί 'conveys a sense of climax, and denotes that something is not only true, but true in a marked degree' (Denniston &amp; Dover 1996 pp. 317–18).</li> </ul>	<p>(Goodwin 1897 sec. 529).</p> <ul style="list-style-type: none"> <li>• <i>Participle in nominative</i>: ὄν in nominative where subject of the participle and matrix verb (εἰδῆ) are the same (Emde Boas <i>et al.</i> 2019 sec. 52.12).</li> <li>• <i>'You have been' in English</i>: ἐπιθυμεῖς in the <i>present</i> tense, used here with an accusative of duration (πολλὰ ἔτη), expresses 'the sense of a perfect and a present combined' (Goodwin 1897 sec. 26).</li> <li>• <i>Perfect tense for present result</i>: εἴληφας in the perfect tense, expressing the aspect of the action of taking being complete at the present time (Goodwin 1897 sec. 42).</li> </ul>
ΣΩΚ. θαυμασίως γε νῆ τὴν Ἥραν λέγεις, ὦ Στέφανε· εἰ δ' οὖν καὶ ὀρθῶς, οὐπω οἶδα ἔγωγε. τίνα δὴ φῆς αὐτὸν γινώσκειν; οὐχὶ τὸν εἰδότα πῶς αὐτὸς γέγονεν;	SOC. By Hera, you speak wonderfully, Stephen! However, I don't know yet whether you also speak truly. <i>Who</i> is that you claim knows themselves? Is it whoever knows their own origin?	<ul style="list-style-type: none"> <li>• γε marking θαυμασίως with <u>limitative</u> emphasis (the scope of Socrates' concession here is further explained in the next sentence) (Denniston &amp; Dover 1996 pp. 14–15 n. (2), 140–44).</li> <li>• δ' οὖν marking a contrasting element with <u>affirmative</u> emphasis ('really and truly'), marks the element as essential, or the <i>last and most important</i> of the elements (here, whether Hawking speaks ὀρθῶς is more important to Socrates than whether he speaks θαυμασίως) (Denniston &amp; Dover 1996 pp. 460–63).</li> <li>• δὴ marking an interrogative with <u>affirmative</u> emphasis ('really and truly') (Denniston &amp; Dover 1996 pp. 210–12).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Section 3 of 5—'Proposition'</i>: I refer in the notes to this third section of the dialogue as the 'proposition' (Socrates clarifies the claim he will examine).</li> <li>• <i>Gendered oath</i>: νῆ τὴν Ἥραν was normally an oath used by women, but Socrates used it too, and in Plato it 'always accompanies expressions of admiration' (as here) (Dodds 1990 p. 195). I also used it here as an echo of Hawking's earlier reference to Hera above.</li> </ul>

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<p>ΣΤΕΦ. ἔγωγε· ἕκαστος γὰρ οὖν δὴ ἡμῶν ἐστὶν οἷόσπερ πέφυκεν εἶναι, ἀλλ' οὐ μὴν ἔσθ' ὅπως ἂν τις μάθοι ὅπῃ αὐτὸς πέφυκεν μὴ τὴν αὐτοῦ γένεσιν ἐπιστάμενος.</p>	<p>STEPH. Exactly—for each of us is what they've been formed by nature to be, but no-one can learn how they've been formed unless they also know their own origin.</p>	<ul style="list-style-type: none"> <li>• γὰρ οὖν δὴ marking a reason with <u>affirmative emphasis</u> ('really and truly') (Denniston &amp; Dover 1996 p. 447).</li> <li>• -περ with a relative, marking the limitation of the relative clause's applicability to the following words ('precisely which') (Emde Boas <i>et al.</i> 2019 sec. 59.55).</li> <li>• ἀλλ' οὐ μὴν marking a negative statement as a new premise in an argument (Denniston &amp; Dover 1996 p. 345).</li> </ul>	<ul style="list-style-type: none"> <li>• <i>Position of partitive genitive</i>: ἡμῶν as a partitive genitive falls <i>after</i> pronominal ἕκαστος, as is regular (Yonge 1870 p. xxxiii).</li> <li>• <i>'No-one can'</i>: For οὐκ ἐστὶν ὅπως followed by potential optative with ἂν, cf. <u>οὐκ ἔσθ' ὅπως ἂν τις φύγοι τὸ καταγέλαστος γενέσθαι φάσκων ἔχειν ταύτην τὴν ἐπιστήμην</u>. Pl. <i>La.</i> 184c.</li> <li>• <i>No assimilation of mood</i>: The verb in ὅπῃ αὐτὸς πέφυκεν, being an indicative expressing past time, does not assimilate in mood with the optative in the main clause (μάθοι) (Goodwin 1897 sec. 176).</li> <li>• <i>Participle as protasis</i>: μὴ ... ἐπιστάμενος represents a participle standing for a protasis, with its present tense representing a simple supposition protasis that could be analogously expressed by εἰ μὴ ἐπίσταται (Goodwin 1897 sec. 341).</li> <li>• <i>Position of αὐτοῦ</i>: Reflexive αὐτοῦ in the attributive position used as the third person singular possessive (Smyth &amp; Messing 1984 sec. 1201(2a)).</li> <li>• <i>Identity grounded in one's origin</i>: For the idea asserted here, cf. Hawking: 'It is the past that tells us who we are. Without it, we lose our identity.' (Hawking <i>et al.</i> 2020 Chapter 5: What is inside a black hole?).</li> </ul>
<p>ΣΩΚ. αὐτὸ δὲ καλὸν τι οἶε εἶναι, τὸ αὐτὸν γινῶναι;</p>	<p>SOC. And do you think that knowing oneself is, in itself, a fine thing?</p>	<p>δέ marking a new premise in an argument, expressed in the positive (Jacquinod 1997 pp. 144–45).</p>	<p><i>Neuter αὐτό in apposition</i>: αὐτό in apposition to τὸ αὐτὸν γινῶναι, expressing that knowledge in itself (Riddell 1867 sec. 47 app. B). It sits at the end of the question as the 'tail' (Emde Boas <i>et al.</i></p>

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ΣΤΕΦ. οὐ δῆτα ἀλλὰ κάλλιστον.	STEPH. The <i>finest</i> , rather.	οὐ δῆτα ἀλλὰ marking a correction to the previous statement with text that is more applicable (i.e. not καλόν, but κάλλιστον) (Denniston & Dover 1996 p. 275).	2019 sec. 60.35). —
ΣΩΚ. φέρε δῆ, ἐπισκεψώμεθα τί λέγεις. καί μοι εἰπέ·	SOC. OK, let's examine what you are saying. Tell me this:	φέρε δῆ introducing a directive (Emde Boas <i>et al.</i> 2019 sec. 38.27).	<ul style="list-style-type: none"> <li>• <i>Section 4 of 5—‘Argument’</i>: I refer in the notes to this fourth section of the dialogue as the ‘argument’.</li> <li>• <i>Model for Socrates’ refutation</i>: My refutation in this dialogue is loosely based on Socrates’ refutation in Pl. <i>Chrm.</i> 159a–160d. Socrates refutes there Charmides’ claim that self-control is to be defined as ‘a sort of quietness’. The logical form of Socrates’ refutation can be expressed as a second figure syllogism: <i>Minor premise</i>: Self-control is a member of the class of the finest things (159c1). <i>Major premise</i>: ‘A sort of quietness’ is not a member of the class of the finest things (implied; an inductive argument for the major premise is given at 159c3–d5 and 159e1–160b5). <i>Conclusion</i>: Self-control is not ‘a sort of quietness’ (a limited form of this conclusion drawn at 159d10–11, and an unlimited form drawn at 160b7–d2). I analyse each step of this argument, including its assumptions, in my manual of Socratic method (2019 sec. 5.2.2).</li> <li>• <i>Adaptation of the model refutation here</i>: In this dialogue, I have Socrates argue as follows against Hawking’s claim that knowledge of one’s origin is the same as self-knowledge:</li> </ul>

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<p>τῷ γ' ἐν θαλάττῃ χειμαζομένῳ πότερον κάλλιον ἐστὶν εἰδέναι ὅτι ἐκ σμικρῶν δὴ μερῶν τυγχάνει πεφυκώς, ἢ μᾶλλον ἐκείνην ἔχειν τὴν ἐπιστήμην ἢ κρίνων τὰ τε ὡς ἀληθῶς δεινὰ ὄντα καὶ τὰ μή, ἀσφαλῶς ἂν κινδυνεύοι πάντας κινδύνους καὶ αὐτὸς σωθεῖη;</p>	<p>is it finer for someone caught in a storm at sea (a) to know that they happen to have been formed from small particles, or rather (b) to possess that knowledge by which they can distinguish the things that <i>are</i> truly to be feared from those that <i>are not</i>, and—by means of this—securely run all risks and save themselves?</p>	<ul style="list-style-type: none"> <li>• γε marking the participial phrase with determinative emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> <li>• δὴ marking the adjective of indefinite quantity with <u>affirmative</u> emphasis ('really and truly') (Denniston &amp; Dover 1996 pp. 204–6).</li> </ul>	<p><i>Minor premise:</i> Self-knowledge is a member of the class of the finest things (Hawking's admission). <i>Major premise:</i> Knowledge of one's origin is not a member of the class of the finest things (an inductive argument is given to support this premise). <i>Conclusion:</i> Knowledge of one's origin is not self-knowledge.</p> <ul style="list-style-type: none"> <li>• <i>Dative of relation:</i> τῷ χειμαζομένῳ in dative of relation (Smyth &amp; Messing 1984 sec. 1495).</li> <li>• <i>Word order:</i> I'll call out three points: (1) I put the dative of relation at the start of the sentence as its 'theme', as this expression 'establishes a topic for a stretch of discourse by placing it in the left-periphery of a sentence' (Emde Boas <i>et al.</i> 2019 sec. 60.33). (2) The participial clause beginning κρίνων (itself in broad focus, and so the verb falls first within it) establishes the 'setting' for the main clauses (the two potential optatives), and so falls <i>before</i> them (Emde Boas <i>et al.</i> 2019 sec. 60.32). (3) In ἀσφαλῶς ἂν κινδυνεύοι πάντας κινδύνους, ἀσφαλῶς is in narrow focus and so sits <i>before</i> the verb, whereas the cognate noun κινδύνους is predictable information given the verb κινδυνεύοι, and so falls <i>after</i> the verb (Emde Boas <i>et al.</i> 2019 sec. 60.22).</li> <li>• <i>First potential optative:</i> κινδυνεύοι with ἂν in the potential optative (Goodwin 1897 sec. 232).</li> <li>• <i>Second potential optative:</i> σωθεῖη is also in the potential optative; ἂν may be omitted (as here) when it can be supplied from the previous</li> </ul>

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			<p>construction (here, κινδυνεύοι ἄν) (Smyth &amp; Messing 1984 sec. 1767).</p> <ul style="list-style-type: none"> <li>• <i>Theoretical vs practical knowledge</i>: I draw here on Aristotle’s classification of types of διάνοια into thinking, making and doing, e.g. εἰ πᾶσα διάνοια ἢ πρακτικὴ ἢ ποιητικὴ ἢ θεωρητικὴ, Arist. <i>Metaph.</i> 1025b 25. In this argument, I have Socrates suggest that knowledge of how to conduct oneself (πρακτικὴ) is, at least in some cases, ‘finer’ (a difficult predicate to pin down: as Aristotle notes, τὰ δὲ καλὰ καὶ τὰ δίκαια, περὶ ὧν ἡ πολιτικὴ σκοπεῖται, πολλὴν ἔχει διαφορὰν καὶ πλάνην, Arist. <i>EN</i> 1094b) than theoretical knowledge (θεωρητικὴ). It is similar, in a way, to Aristotle’s statement that we study virtue not as a mere <i>theoretical</i> discipline (‘how can we know what virtue is?’), but as a <i>practical</i> one (‘how can we become good?’): οὐ γὰρ ἵνα εἰδῶμεν τί ἐστὶν ἡ ἀρετὴ σκεπτόμεθα, ἀλλ’ ἵν’ ἀγαθοὶ γενώμεθα, ἐπεὶ οὐδὲν ἄν ἦν ὄφελος αὐτῆς, Arist. <i>EN</i> 1103b.</li> <li>• <i>Courage</i>: This is not meant to be a conclusive Socratic definition of courage. I simply draw on some elements in the Platonic dialogues where courage is discussed, e.g. Socrates reduces Protagoras to silence with an inference that wisdom about what is to be feared and what is not is courage: ἡ σοφία ἄρα τῶν δεινῶν καὶ μὴ δεινῶν ἀνδρεία ἐστίν, Pl. <i>Prt.</i> 360d. Socrates also discusses this virtue in the <i>Charmides</i>; Irwin explains Socrates’ point: ‘Brave people</li> </ul>

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			do not face all dangers indiscriminately; they must know which dangers deserve to be faced. The worthwhile dangers do not include those that we face in robbing a bank or in carrying out some prank; indeed, readiness to face certain sorts of dangers (in Don Giovanni, for instance) is a mark of intemperance or injustice, not of bravery' (1995 p. 43). A similar reference to things to be (and things not to be) feared appears in the <i>Republic</i> : τὴν δὴ τοιαύτην δύναμιν καὶ σωτηρίαν διὰ παντὸς δόξης ὀρθῆς τε καὶ νομίμου δεινῶν τε περὶ καὶ μὴ ἀνδρείαν ἔγωγε καλῶ καὶ τίθεμαι, Pl. <i>R.</i> 430b. The virtue is also discussed extensively in <i>Laches</i> , where no conclusive definition is reached.
ΣΤΕΦ. οὕτω μᾶλλον.	STEPH. The latter.	—	' <i>The latter</i> ': For this response, cf. εἰ ᾧ ἂν τι παρῆ, τοιοῦτον ἔσται τὸ ἔχον οἷον τὸ παρόν· ἢ ἐὰν μὲν κατὰ τινα τρόπον παρῆ, ἔσται, ἐὰν δὲ μή, οὐ; — οὕτω μᾶλλον, ἔφη. Pl. <i>Ly.</i> 217e.
ΣΩΚ. καὶ ἀνδρείαν δὴ ὀρθῶς καλοῦμεν αὐτήν;	SOC. And we correctly call this knowledge 'courage'?	δὴ used 'when the proper word for, or name of, a thing is appended to a description of it' (as here, applying the name 'courage' to the knowledge described in Socrates' preceding question) (Sicking & Ophuijsen 1993 p. 142).	<ul style="list-style-type: none"> <li>• <i>Virtue and knowledge</i>: Socrates' suggestion here is, of course, open to challenge; e.g. Aristotle would have taken issue with any proposal that either (1) courage <i>is</i> knowledge—Aristotle attributes this view to Socrates: ὁ Σωκράτης ᾗθη ἐπιστήμην εἶναι τὴν ἀνδρείαν, Arist. <i>EN</i> 1116b, but does not agree with it; Aristotle 'criticizes Socrates in various ways for exaggerating the importance of knowledge in virtue (Irwin 1995 p. 9); or (2) knowledge alone could <i>be sufficient</i> for virtuous conduct in any particular instance—for Aristotle, knowledge is</li> </ul>

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			<p>just one condition among several for any virtue (other conditions include acting based on a deliberated choice in a specific situation, in a certain way that avoids extremes of excess or deficiency, out of a trained and well-settled habit to act in that way, etc.): τὰ δὲ κατὰ τὰς ἀρετὰς γινόμενα οὐκ ἔαν αὐτὰ πως ἔχη, δικαίως ἢ σωφρόνως πράττεται, ἀλλὰ καὶ ἔαν ὁ πράττων πῶς ἔχων πράττη, <u>πρῶτον μὲν ἔαν εἰδῶς, ἔπειτ' ἔαν προαιρούμενος, καὶ προαιρούμενος δι' αὐτά, τὸ δὲ τρίτον ἔαν καὶ βεβαίως καὶ ἀμετακινήτως ἔχων πράττη</u>, Arist. <i>EN</i> 1105a; ἔστιν ἄρα ἡ ἀρετὴ <u>ἕξις προαιρετικῆ, ἐν μεσότητι οὐσα τῇ πρὸς ἡμᾶς, ὠρισμένη λόγῳ καὶ ᾧ ἂν ὁ φρόνιμος ὀρίσειεν</u>, Arist. <i>EN</i> 1106b–1107a, etc.</p> <ul style="list-style-type: none"> <li>• <i>Courage at sea</i>: This question suggests that courage can be exercised when faced with the dangers at sea (not just in war). Socrates specifically contemplates this: μὴ μόνον τοὺς ἐν τῷ πολέμῳ, ἀλλὰ καὶ τοὺς ἐν τοῖς πρὸς τὴν θάλατταν κινδύνοις ἀνδρείους ὄντας, Pl. <i>La.</i> 191d. Aristotle, however, said that someone does not seem courageous when facing death at sea, where one cannot die nobly like in war, e.g. δόξειε δ' ἂν οὐδὲ περὶ θάνατον τὸν ἐν παντὶ ὁ ἀνδρείος εἶναι, οἷον ἐν θαλάττῃ ἢ νόσοις, Arist. <i>EN</i> 1115a. As this is a Socratic dialogue, I deliberately have Socrates give an example of courage in a sea-storm.</li> <li>• <i>Word order</i>: ἀνδρείαν forms a ‘new topic’ and</li> </ul>

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ΣΤΕΦ. τί οὖν;	STEPH. What's your point?	τί οὖν; used to question about the relevance of the preceding text: 'so what?' (Sicking 1997 pp. 169–70).	— so is the first lexical element in the clause; the adverb is in narrow focus and in its usual spot, falling before the verb; αὐτήν is 'given' information, and so falls after the verb (Emde Boas <i>et al.</i> 2019 sec. 60.22).
ΣΩΚ. ἀνέχεσθαι γε χρή, ὃ Στέφανε, ἐμοῦ ἐπιχειροῦντος ἄλλους ἐξετάζειν· ἐπεὶ τοι καὶ κατὰ σμικρὸν προῖων τοὺς λόγους ποιοῦμαι, φοβούμενος ἐκάστοτε μὴ ποτε λάθω δι' ἀμέλειαν ἢ διὰ ῥαθυμίαν ἐξαμαρτῶν.	SOC. Ah, Stephen, one must be patient with me when I try to examine others. For you see, I carry out my reasoning advancing by little steps, fearing on each occasion that, through carelessness or rashness, I might fall into error unawares.	<ul style="list-style-type: none"> <li>• γε marking ἀνέχεσθαι with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> <li>• ἐπεὶ τοι καὶ marking a reason drawn to the attention of the interlocutor (here, Hawking), with <u>determinative</u> emphasis applied to κατὰ σμικρὸν (Denniston &amp; Dover 1996 p. 546).</li> </ul>	<ul style="list-style-type: none"> <li>• 'Fear' construction: φοβούμενος μὴ with subjunctive after a leading verb in primary time (here, ποιοῦμαι) (Goodwin 1897 sec. 365).</li> <li>• Aorist verb with aorist supplementary participle: Aorist participle ἐξαμαρτῶν used with aorist λάθω 'does not denote time past with reference to the verb, but coincides with it in time' (Goodwin 1897 sec. 144).</li> <li>• Repetition of preposition: I repeated διὰ because: 'With Disjunctives the Preposition is repeated; as, (1) more frequently with the Single Disjunctive, ἢ, or' (as is the case here) (Yonge 1870 p. lxxxviii).</li> </ul>
ΣΤΕΦ. ὀρθῶς γε σὺ τοίνυν ποιῶν.	STEPH. And you are quite correct to do so.	<ul style="list-style-type: none"> <li>• γε marking ὀρθῶς with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> <li>• τοίνυν marking a comment on the previous speaker's words (Denniston &amp; Dover 1996 pp. 572–73), e.g. ἀλλὰ πάνυ συγχωρῶ, ἔφη, καὶ παραδέχομαι. — καλῶς γε σὺ τοίνυν, ἦν δ' ἐγώ, ποιῶν. Pl. <i>Chrm.</i> 162e.</li> </ul>	<p><i>Shift of voice:</i> For the shift from the <i>middle</i> ποιοῦμαι (<i>with</i> τοὺς λόγους expressed in the common periphrastic construction) in the previous sentence to the <i>active</i> ποιῶν here (<i>without</i> τοὺς λόγους), cf. καὶ μοι ἐπίδειξιν αὐτοῦ τούτου ποιῆσαι, τῆς βραχυλογίας, μακρολογίας δὲ εἰς αὐθις. — ἀλλὰ ποιήσω, Pl. <i>Grg.</i> 449c. Dodds notes that he might have expected the middle in the response, but doesn't refer to the</p>

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ΣΩΚ. μὴ οὖν θαύμαζε τὰ ἐρωτώμενα, ἀλλ' ἀποκρίνου·	SOC. Don't be surprised then at my questions, but just respond:	<ul style="list-style-type: none"> <li>• οὖν marking a directive after text supporting it (here, after Socrates' explanation of his approach to reasoning) (Sicking &amp; Ophuijsen 1993 p. 100).</li> <li>• ἀλλά, like οὖν, marking a directive after text supporting it (but with the semantic element 'but') (Denniston &amp; Dover 1996 pp. 14–15).</li> </ul>	<p>fact that ἐπίδειξις is not repeated in it (Dodds 1990 p. 195).</p> <p><i>Tense of imperative:</i> The present tense of the imperative expresses the prohibition 'in its duration, that is, as going on or repeated' (Goodwin 1897 sec. 87), as is appropriate here for Hawking's reaction to Socrates' questions going forward.</p>
τῷ δὴ ἡδονῶν τινων κατὰ τύχην γευσασμένῳ κάλλιον ἔσται ἐὰν μάθῃ συγκείμενός πως, ἢ ἐὰν μηδενὶ τρόπῳ ἤττων ὦν τῶν ἡδονῶν, ταῖς μὲν ἐμμέτροις χαίρειν ἐπίσθηται, τῶν δὲ καὶ σφοδροτέρων κρατεῖν;	will it finer for someone who, by chance, has tasted some pleasures if they (a) understand that they are themselves, in some fashion, a compound, or instead if they, (b) being in no way enslaved to pleasures, know how to enjoy the moderate ones, and master the more intense ones?	<ul style="list-style-type: none"> <li>• δὴ here marking the progression of the discussion to the next topic (Denniston &amp; Dover 1996 p. 239).</li> <li>• καὶ marking the comparative σφοδροτέρῳ with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 p. 319).</li> </ul>	<p><i>Word order:</i> Once again (as in my first example above in this inductive argument), I put the dative of relation at the start of the sentence as its 'theme' (Emde Boas <i>et al.</i> 2019 sec. 60.33).</p>
ΣΤΕΦ. δῆλον δὴ τοῦτό γε κάλλιον ἔσται.	STEPH. Clearly the latter will be finer.	<ul style="list-style-type: none"> <li>• δὴ marking δῆλον with <u>affirmative</u> emphasis ('really and truly') (Denniston &amp; Dover 1996 pp. 204–6).</li> <li>• γε marking χάρις with <u>determinative</u> emphasis (Denniston &amp; Dover 1996 pp. 114–19, 127–30).</li> </ul>	—
ΣΩΚ. οὐκοῦν σωφροσύνην λέγεις ταύτην τὴν ἐπιστήμην;	SOC. And you call such knowledge 'self-control'?	οὐκοῦν marking a new argument premise in the form of a question (Denniston & Dover 1996 p. 434).	<ul style="list-style-type: none"> <li>• <i>Self-control:</i> Once again, this is not meant to be a conclusive Socratic definition of self-control. I draw on some elements in the Platonic</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
<p>ΣΤΕΦ. σωφροσύνην γὰρ οὖν· ἀτὰρ μὴ ἐπὶ τῷ λόγῳ τὴν ἄλλην ἡμέραν διατρίβωμεν, ἔστω καὶ περὶ τῶν ἄλλων ἀρετῶν ὡσαύτως. ἀλλὰ πρὸς τί ταῦτα ἐρωτᾷς;</p> <p>ΣΩΚ. εἰ ἄρα καὶ τῷ μήκει τῆς ἐξετάσεως ἀγανακτεῖς ταυτησί, προϊώμεν δὴ ἵνα περανθῇ.</p>	<p>STEPH. Yes, ‘self-control’—and now, to avoid spending the rest of the day on this argument, let’s just assume that the same applies in the case of the other virtues too. But what’s your point in asking these things?</p> <p>SOC. Ah, if you’re now also impatient with the length of this examination, let’s advance and bring it to</p>	<ul style="list-style-type: none"> <li>• γὰρ οὖν in an assenting response, marking the echo of σωφροσύνην from the question and <u>affirmative</u> emphasis (‘really and truly’) (Denniston &amp; Dover 1996 p. 418).</li> <li>• ἀτὰρ marking a sudden break in the conversation, colloquial in tone (Denniston &amp; Dover 1996 pp. 51–54).</li> <li>• ἄρα here with εἰ ‘denotes that the hypothesis is one of which the possibility has only just been realized’ (i.e. Socrates has just realised that Hawking is becoming impatient with the length of the argument, not only the nature of the</li> </ul>	<p>dialogues where self-control is discussed (it is defined there in many ways) as a type of mastery over certain pleasures, e.g.: κόσμος πού τις, ἦν δ’ ἐγώ, ἡ σωφροσύνη ἐστὶν καὶ ἡδονῶν τινῶν καὶ ἐπιθυμιῶν ἐγκράτεια, Pl. <i>R.</i> 430e; εἶναι γὰρ ὁμολογεῖται σωφροσύνη τὸ κρατεῖν ἡδονῶν καὶ ἐπιθυμιῶν, Pl. <i>Smp.</i> 196c. In the <i>Charmides</i>, where this virtue is discussed extensively, ‘Socrates never so much as hints that the identification of temperance with some sort of knowledge is open to objection’ (Irwin 1995 p. 40). I follow that approach in Socrates’ line of questioning here.</p> <ul style="list-style-type: none"> <li>• <i>Word order</i>: Here σωφροσύνην is in narrow focus, and so sits before the verb (Emde Boas <i>et al.</i> 2019 sec. 60.22).</li> <li>• <i>Imperative for an assumption</i>: ἔστω in the third person imperative, to express ‘a mere assumption, where something is supposed to be true for argument’s sake’ (Goodwin 1897 sec. 254).</li> <li>• <i>Word order</i>: The expression καὶ περὶ ... is in ‘additive’ focus, and so falls <i>after</i> the verb (Emde Boas <i>et al.</i> 2019 sec. 60.24).</li> </ul> <p><i>Final clause</i>: ἵνα in a pure final clause takes the subjunctive (not optative) where the main verb is primary (Goodwin 1897 sec. 317). That applies here, because the main verb is a deliberative subjunctive, and all tenses of the subjunctive ‘are</p>

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	a conclusion.	questions) (Denniston & Dover 1996 pp. 37–38). • δὴ with a jussive subjunctive marking directive triggered by the preceding discussion (Denniston & Dover 1996 p. 218) (Denniston doesn't cite Platonic examples there, but there are many, e.g. ἴωμεν δὴ, ἔφη, ἐπὶ ταῦτά ἐφ' ἅπερ ἐν τῷ ἔμπροσθεν λόγῳ, Pl. <i>Phd.</i> 78c.)	<i>primary</i> , as they refer to future or to present time' (Goodwin 1897 sec. 174).
καὶ μὲν δὴ ἐπιστήμας γέ τινας ὁμολογήκαμεν εἶναι ὧν ἐκάστη καλλίων ἢ εἰδέναι πῶς ἕκαστος ἐγένετο· ἢ οὐ μνημονεύεις;	So then, we've agreed that there are some types of knowledge which are <i>finer</i> than knowing everyone's origin: or don't you remember?	καὶ μὲν δὴ ... γέ marking a progressive shift in the discussion to the argument itself, together with <u>determinative</u> emphasis applied to ἐπιστήμας (Denniston & Dover 1996 p. 396).	—
ΣΤΕΦ. ἔγωγε.	STEPH. I do.	—	—
ΣΩΚ. ἀλλὰ μὴν κάλλιστόν γε ἔφησ τὸ αὐτὸν γινῶναι· ἢ γάρ;	SOC. But you said knowing oneself is <i>finest</i> , right?	ἀλλὰ μὴν marking the next premise in an argument; in approx. 75% of cases followed by γε, as here (Denniston & Dover 1996 pp. 22, 150, 337, 346–47), (Jacquinod 1997 pp. 145–46).	—
ΣΤΕΦ. ναί.	STEPH. Yes.	—	—
ΣΩΚ. οὐκ ἄρ' ἂν εἴη ποτὲ ταῦτόν, ὧ Στέφανε, τό τε τὴν αὐτοῦ γένεσιν εἰδέναι καὶ τὸ αὐτὸν γινῶναι.	SOC. It follows, Stephen, that <i>knowing one's origin</i> could not, in any way, be the same thing as <i>knowing oneself</i> .	ἄρα in an objective inference (Sicking & Ophuijsen 1993 pp. 102–3), with a conversational nuance (Denniston & Dover 1996 p. 41).	—
ΣΤΕΦ. οὐκ ἔοικεν· καίτοι εὖ γ' ἴσθι ὅτι οὐ μὴ σκοπῶν παύσωμαι	STEPH. It seems not; and yet, as you know well, I will not cease	• καίτοι marking a rejection of an implicit inference from the preceding text (Jacquinod 1997 pp. 141–42, 148): 'although one might	• <i>Emphatic denial</i> : οὐ μὴ with aorist subjunctive expressing an emphatic denial regarding the future (Goodwin 1897 sec. 295).

Platonic Greek	Eng. translation	Particles	Other notes
τὸ πᾶν, οὐδ' ἔάν με πολλάκις ἐξελέγχης·	studying the universe— not even if you should refute me many times over!	infer that I would stop studying cosmology as a result of this refutation, in fact...'. • γ' marking εἶ with <u>determinative</u> emphasis (Denniston & Dover 1996 pp. 114–19, 127–30).	• <i>σκοπῶν παύσομαι</i> : παύσομαι is used with the supplementary participle σκοπῶν 'to cease (investigating)' (Goodwin 1897 sec. 879). • 'Not even if': For the construction with οὐδ' ἔάν, cf. e.g. οὐ πείθομαι οὐδ' οἶμαι ἀδικίαν δικαιοσύνης κερδαλέωτερον εἶναι, <u>οὐδ' ἔάν</u> ἕα τις αὐτήν καὶ μὴ διακωλύη πράττειν ἅ βούλεται, Pl. R. 345a.
τοὺς γὰρ δὴ σοφοὺς φημι μυριάκις ἠύρηκέναι ὠφελιμώτατα τοῖς ἀνθρώποις πᾶσιν, καὶ εὐρήσειν ἄλλα μυρία οἷα οὐκ ἄν τις τῶν νῦν μαντεύσαιτο.	<i>Scientists</i> have, I claim, on countless occasions discovered most useful things for the benefit of the whole human race, and will discover countless more things— things that no-one today could even foretell.	γὰρ δὴ marking this reason with affirmative emphasis ('really and truly'), arresting the interlocutor's attention (Denniston & Dover 1996 pp. 243–44).	—
ΣΩΚ. ταῦτ' ἔστω, καὶ πρὸς γ' ὑμῖν μὲν δὴ τοῖς σοφοῖς χάριν ἀποδίδωμι τῶν ἤδη ἠύρημένων, σοὶ δ' οὖν αὐτῷ, ὦ Στέφανε, σφόδρα παρακελεύομαι διατελεῖν ὅτι βούλει σκοπῶν·	SOC. Let us grant it; in addition, I do indeed thank you scientists for the discoveries which you have already made; as for you yourself, Stephen, I very much exhort you to go on investigating whatever you wish:	• μὲν δὴ marking the first element of a contrast where the statement of Socrates' gratitude to scientists bears <u>affirmative</u> emphasis ('really and truly') (Denniston & Dover 1996 p. li, 257– 59). • δ' οὖν marking a subsequent element in a contrast as the last and most important (here, the advice to Hawking himself being the most important of Socrates' messages in this section), with <u>affirmative</u> emphasis ('really and truly') (Denniston & Dover 1996 pp. 460–63).	• <i>Section 5 of 5—'Peroration'</i> : I refer in the notes to this final section of the dialogue as the 'peroration'. • <i>'Grand' style</i> : Unlike previous sections, I write this section is written in the 'grand' style of Attic. Just as Cicero used different styles of Latin for different sections of the same oration —predominant use of the <i>middle</i> style (which <i>delights</i> ) in exordia and digressions, the <i>simple</i> style (which <i>informs</i> ) in narrations and arguments, and the <i>grand</i> style (which <i>triggers</i> <i>emotions</i> ) in perorations (Albrecht 2003 pp. 79– 82)—Plato uses a variety of styles in different sections of his dialogues. Denniston notes that

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			<p>‘Plato writes not in one style, but in several, but with such subtle play on the changes that the break is nowhere apparent’ (1952 p. 17). One must be careful, I think, to choose the right style for each section, and then to use elements appropriate for each style, otherwise a mish-mash of elements from different styles might produce something ridiculous, as if one mixed Shakespearean diction with slang, e.g.: <i>‘Discover, sis, where thou didst buy thy jeans! I would fain wear thy dripping livery; it slays—thou art, methinks, a boujee wench’</i>.</p> <ul style="list-style-type: none"> <li>• <i>Elements of grand style</i>: Demetrius notes that the grandeur of this style depends on three elements: (1) the thought, (2) the diction, and (3) the composition (2002 sec. 38). I call out in this and the following rows the elements of grand style which I incorporate.</li> <li>• <i>Element 3 of grand style—composition (clause beginnings)</i>: For grand style, Demetrius recommends beginning each clause with a long syllable (2002 secs. 39–41). I adopt this in the peroration, using in the following clauses e.g. ζήτει rather than σκόπει for the imperatives, and contracting ἐάν to ἄν.</li> <li>• <i>Element 3 of grand style—composition (clause endings)</i>: Demetrius recommends certain types of rhythms for clause endings in the grand style (2002 secs. 38–43). Since this is a Socratic dialogue, I use Plato’s preferred clausulae (rhythmic endings). To give the clausulae</li> </ul>

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			<p>‘identities’—i.e. a way to make them stick in the memory—I invent names for them as follows: (a) two clausulae were favoured by Plato ‘in every period of Plato’s literary activity’ (Brandwood 2022 p. 99): I call these ‘<u>classic style</u>’ clausulae, and I analyse them as an iamb (short, long) or spondee (double-long), followed by a cretic (long, short, long). (b) Plato also favoured some further clausulae in the <i>Laws</i> and other later works (Brandwood 2022 p. 98): two of these I call ‘<u>new style</u>’, which I analyse as a tribrach (triple-short) or molossus (triple-long), followed by a spondee (double-long). (c) A fifth clausula (which Plato favoured in the later period) I call ‘<u>Aristotelian style</u>’: I analyse it as a trochee (long, short) followed by an anapaest (double-short, long). I use the term ‘Aristotelian’ as it contains the fourth paeon (triple-short, long) recommended by Aristotle as a clausula in Arist. <i>Rh.</i> 3.8.6: cf. (Lausberg 1998 sec. 1026). I take a colon-final syllable as long in all cases, i.e. final <i>brevis in longo</i> (Brandwood 2022 p. 98).</p> <ul style="list-style-type: none"> <li>• <i>Element 3 of grand style—composition (clausulae in this row)</i>: The cola in this row have the following clausulae: τῶν ἤδη <u>ἠύρημένων</u> ‘classic style’ (spondee + cretic); ὅτι βούλει σκοπῶν ‘classic style’ (iamb + cretic).</li> <li>• <i>Element 3 of grand style—composition (cola length)</i>: Longer clauses are appropriate for the</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
ζήτει τοίνυν ἄστρα τε δῆ, εἴτ' οὖν ἐξεργάγη	investigate stars— whether or not they	<ul style="list-style-type: none"> <li>• τοίνυν with imperative falling <i>before</i> the reason given for the directive (here, in a directive</li> </ul>	<p>grand style (Demetrius 2002 sec. 44); I use generally longer clauses in this peroration. Furthermore, in a carefully crafted sentence (as is appropriate for the grand style), the final colon should be longer than the preceding cola (Demetrius 2002 sec. 18). The three cola in this sentence (beginning ταῦτ' ..., καὶ ..., σοὶ ...) are progressively longer, consistent with the rule.</p> <ul style="list-style-type: none"> <li>• <i>Element 3 of grand style—composition (hiatus)</i>: Demetrius recommends, for the grand style, hiatus primarily between long vowels / diphthongs, rather than involving short vowels (2002 secs. 72–73). I have implemented this throughout the peroration to the extent possible, through elision of shorts (e.g. ταῦτ' ἔστω) and allowing hiatus between longs / diphthongs (e.g. ἤδη ηῦρημένων).</li> <li>• <i>Imperative for an assumption</i>: ἔστω in the third person imperative, to express ‘a mere assumption, where something is supposed to be true for argument’s sake’ (Goodwin 1897 sec. 254).</li> <li>• <i>Adverbial πρός</i>: πρός is used here adverbially, and (as often) with γε: ‘besides, over and above’ (Liddell <i>et al.</i> 1996 s.v. πρός D), (Diggle 2020 s.v. πρός L(2)).</li> <li>• <i>διατελεῖν σκοπῶν</i>: διατελεῖν is used with the supplementary participle σκοπῶν ‘to continue (investigating)’ (Goodwin 1897 sec. 879).</li> <li>• <i>Element 1 of grand style—thought (grand topic for grand style)</i>: Demetrius notes that grandeur</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
ταῦτ' εἶτε μή, καὶ πλανητὰ καὶ φῶς περικαλλές καὶ σύνθετα καὶ μέρη καὶ τᾶλλ' ὄντως ὄντα,	have exploded—and planets, and majestic light, and compounds, and particles, and whatever else actually exists;	preceding the οὐ γὰρ ἔσθ' ὅπως οὐ ... statement below) (Sicking & Ophuijsen 1993 p. 153). • τε δὴ marking an element in a list with <u>affirmative</u> emphasis ('really and truly') (Denniston & Dover 1996 pp. 259–62). • οὖν with εἶτε marks <u>affirmative</u> emphasis (‘really and truly’), expressing that the qualification does not matter (Denniston & Dover 1996 pp. 418–19), e.g. ἀλλ' οὐδέν μοι διαφέρει, ἐὰν μόνον σύ γε ἀποκρίνη, εἴτ' οὖν δοκεῖ σοι ταῦτα εἶτε μή, Pl. <i>Prt.</i> 333c.	comes from a grand subject, such as concerning the universe and earth (ἢ περὶ οὐρανοῦ ἢ περὶ γῆς) (2002 sec. 75)—easy to do in a conversation with a cosmologist! I zoom out and cover cosmic elements from the largest to smallest (the direction of search for fundamental particles) in a grand sweep. • <i>Element 2 of grand style—diction (poetic vocabulary)</i> : Demetrius recommends incorporating poetic vocabulary when writing in the grand style, e.g. Thucydides' use of the Homeric περιρρύτου at 4.64.3 (2002 secs. 112– 13). I therefore use here an adjective which Homer uses to describe light: περικαλλές (χρύσειον λύχνον ἔχουσα, φάος <u>περικαλλές</u> ἐποίει, Hom. <i>Od.</i> 19.34). • <i>Element 3 of grand style—composition (clausulae in this row)</i> : The cola in this row have the following clausulae: ἐξερράγη ταῦτ' <u>εἶτε μή</u> ‘classic style’ (spondee + cretic); <u>τᾶλλ'</u> <u>ὄντως ὄντα</u> , ‘new style’ (molossus + spondee, final <i>brevis in longo</i> ). (I do not treat the few words before εἴτ' οὖν as an independent colon.) • <i>Element 3 of grand style—composition (chains of connectives)</i> : Demetrius notes that chains of connectives can create grandeur (2002 secs. 54– 63). I use such a chain in this row, and in several of the following rows in this peroration. • For the accentuation of τᾶλλ' (= τὰ ἄλλα following crasis + elision), the acute accent of ἄλλα is retained; due to the elision, no trochee

Platonic Greek	Eng. translation	Particles	Other notes
ζήτει τὸν χρόνον ὅτι ποτ' ἐστὶ καὶ πότε γέγονε καὶ ποῦ,	investigate time—what it is, when it came into being, and where;	—	<p>is formed, and so the accent is not changed to circumflex, as it would have been without elision (τᾶλλα), as I discussed above.</p> <ul style="list-style-type: none"> <li>• <i>Prolepsis</i>: I put τὸν χρόνον in the main clause with the imperative, rather than in the subordinate indirect questions, which is a case of prolepsis (Emde Boas <i>et al.</i> 2019 sec. 60.37). A classic example in English is the translation ‘Consider <u>the lilies of the field</u>, how they grow’ (rather than: ‘Consider how the lilies of the field grow’), translating καταμάθετε τὰ κρίνα τοῦ ἀγροῦ πῶς αὐξάνουσιν, <i>Ev. Matt.</i> 6:28.</li> <li>• <i>Accent of ποτ' ἐστὶ</i>: Indefinite ποτέ is one of the exceptions (like prepositions and τινά) where ‘the elided form has no accent’ (Probert 2003 sec. 78). This combination is therefore accented in this way, as in e.g. Pl. <i>Euthphr.</i> 11a: καὶ κινδυνεύεις, ᾧ Εὐθύφρων, ἐρωτώμενος τὸ ὅστιον ὅτι ποτ' ἐστίν,</li> <li>• <i>Element 3 of grand style—composition (anaphora)</i>: Commencing this clause (like the previous one) with the imperative ζήτει is a use of the rhetorical figure anaphora (repetition of the same expression at the beginning of successive clauses) (Lausberg 1998 sec. 629). Anaphora contributes to grandeur, and so is appropriate for the grand style (Demetrius 2002 secs. 61–62). I repeat it again in the next clause to make a set of three.</li> <li>• <i>Element 3 of grand style—composition (asyndeton)</i>: I do not include any connectives</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
<p>ζητει τὸ κενὸν πῶς ἔχει καὶ πῶς δι' αὐτοῦ τᾶλλα κινεῖται καὶ πῶς ἄλλων τινῶν παρόντων κάμπτεται, ὡσπερ ἂν εἴ τις τῶν ἀθανάτων θεῶν τόξα παλίντονα</p>	<p>investigate space—its nature, how everything else moves through it, and how it's curved when certain other things are present, like one of the immortal</p>	—	<p>with second and third instances of ζητει in this peroration. This use of asyndeton promotes grandeur (Demetrius 2002 sec. 61). Denniston describes it as ‘full’ asyndeton (i.e. at clause boundaries, rather than elements within a clause); when combined with anaphora (as here), ‘the hammer strokes fall more slowly, and with a more ponderous weight’ (1952 p. 115).</p> <ul style="list-style-type: none"> <li>• <i>Element 3 of grand style—composition (clausula in this row)</i>: The colon in this row has the following clausula: <u>γέγονε καὶ ποῦ</u>, ‘new style’ (tribrach + spondee).</li> <li>• <i>Multiple interrogatives</i>: On the multiple interrogatives (πότε, ποῦ) with the same verb γέγονε, cf. e.g. <u>πρὸς ὅτι τε μάλιστα καὶ ὅπη καὶ ὅπως καὶ ὁπότε</u> συμβαίνει, Pl. <i>Ti.</i> 37b; the e.g. I originally had in mind however was ἴσως δὲ ταῦτα μὲν ὀρθῶς ἠγεῖσθε λέγεσθαι, τὸ δὲ τῶν χρημάτων, <u>πόσα καὶ πόθεν</u> ἔσται, μάλιστα ποθεῖτ' ἀκοῦσαι, D.4.28.</li> <li>• <i>Big bang</i>: As to ‘when and where’ time itself began, see my Hawking quotes above on the big bang in the narrative section.</li> <li>• <i>Prolepsis</i>: τὸ κενόν sits in the main clause rather than in the subordinate question clauses introduced by πῶς, and so this is another case of prolepsis.</li> <li>• <i>Genitive absolute</i>: ἄλλων τινῶν παρόντων is in genitive absolute (Goodwin 1897 sec. 847).</li> <li>• <i>Element 2 of grand style—diction (simile)</i>:</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
τιταῖνοι,	gods drawing their curved bow;		<p>Demetrius recommends metaphors and similes in the grand style, particularly those that personify inanimate things (Demetrius 2002 secs. 78–89). I implement this by comparing the curvature of space-time (inanimate) with an immortal god drawing a bow (i.e. personified). Why a god? Well, Demetrius says that metaphors should compare the <i>lesser</i> to the <i>greater</i>, to avoid creating a trivial rather than grand effect (2002 secs. 83–84). I couldn't, therefore, compare the cosmic curvature of space-time—which is already something grand—with some mere human bending their bow, not even Odysseus in book 21 of the <i>Odyssey</i>. Only an immortal god bending their bow seemed grander to me than the curvature of space-time.</p> <ul style="list-style-type: none"> <li>• <i>Position of simile</i>: I place the simile at the end of the clause, for rhetorical emphasis (Denniston 1952 pp. 67–68).</li> <li>• <i>Element 2 of grand style—diction (poetic vocabulary)</i>: As noted above, Demetrius recommends incorporating poetic vocabulary when writing in the grand style (2002 secs. 112–13). I could have written here e.g. ἐντείνοι ἄν τόχον or similar, but I bring across a Homeric phrase, with τόξα plural for singular (Τεῦκρος δ' εἵνατος ἦλθε παλίντονα τόξα τιταίνων, Hom. <i>Il.</i> 8.266). I reversed the order of παλίντονα τόξα, for 'When the noun is without the article, the adjective is regularly put</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
οὐ γὰρ ἔσθ' ὅπως οὐ πάμπολλ' εὐρήσεις ἢ βέλτιον ἂν μάθοιμεν τὸ πᾶν·	for I'm sure that you'll discover a great many things by which we may better understand the universe;	—	<p>last' (Yonge 1870 p. xiv); this regular order also allows a preferred Platonic clausula to be formed (see my next bullet).</p> <ul style="list-style-type: none"> <li>• <i>Element 3 of grand style—composition (clausulae in this row)</i>: The cola in this row have the following clausulae: <u>παρόντων κάμπτεται</u> 'classic style' (spondee + cretic), <u>παλίντονα τιταίνοι</u> 'new style' (tribrach + spondee).</li> <li>• <i>Element 3 of grand style—composition (anaphora)</i>: This sentence contains three indirect questions beginning with πῶς, which is another instance of anaphora (for this figure, see my notes above on ζήτηι).</li> <li>• <i>οὐ ... ἔσθ' ὅπως οὐ</i>: for this construction with the future, cf. ὅ τι δ' ἂν τούτων πρᾶξι δυνηθῆς ἢ καὶ μόνον ἐπιχειρήσης, <u>οὐκ ἔσθ' ὅπως οὐ μᾶλλον τῶν ἄλλων εὐδοκιμήσεις</u>, Isoc. 5.123.</li> <li>• <i>Potential optative</i>: μάθοιμεν with ἂν in the potential optative (Goodwin 1897 sec. 232).</li> <li>• <i>Element 3 of grand style—composition (clausula in this row)</i>: The colon in this row has the following clausula: <u>μάθοιμεν τὸ πᾶν</u>, 'classic style' (iamb + cretic).</li> </ul>
ἂν μέντοι τοῦτό γε βούλη μαθεῖν, ὡς χρῆ καθ' ἐκάστην ἡμέραν ἀνδρείως τε καὶ σωφρόνως καὶ δικαίως πράττειν πάντα, οὐδὲν δεήσει πραγματεῦσθαι	if, however, you wish to learn <i>this</i> —how you ought to act every day, and in every action, in accordance with courage, self-restraint, and justice—you won't	• μέντοι marking the subsequent element of a contrast, 'attaching more value' to the contents of the subsequent column compared with the first column (as is the case here, for Socrates attaches far more weight to living virtuously than physical investigations) (Rijksbaron 2007 pp. 188–89), (Denniston & Dover 1996 pp.	<ul style="list-style-type: none"> <li>• <i>Element 2 of grand style—diction (poetic vocabulary)</i>: As noted above, Demetrius recommends incorporating poetic vocabulary when writing in the grand style (2002 secs. 112–13). I could have used after the substantivising article τῶν an adverb found in good Attic, e.g. πόρρω, but I instead use the</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
τῶν τηλόθι πέρι,	need to busy yourself with things far away,	404–5). • γε marking τοῦτο with <u>limitative</u> emphasis (i.e. if Hawking wants to learn, at least, what Socrates is about to describe, he won't need to investigate to the 'edge of the universe') (Denniston & Dover 1996 pp. 114–15 n. (2), 140–44).	Homeric adverb τηλόθι (ἀλλ' ὁ μὲν Αἰθίοπας μετεκίαθε τηλόθ' ἔοντας, Hom. <i>Od.</i> 1.22). • <i>Element 3 of grand style—composition (clausulae in this row)</i> : The cola in this row have the following clausulae: τοῦτο γε βούλη μαθεῖν, 'classic style' (iamb + cretic); δικαίως πράττειν πάντα, 'new style' (molossus + spondee, final <i>brevis in longo</i> ); τηλόθι πέρι, 'Aristotelian style' (trochee + anapaest, final <i>brevis in longo</i> ). • <i>Position and accent of πέρι</i> : In Attic, this can fall after its genitive (as here), with the preposition's accent receding to the penultimate (Emde Boas <i>et al.</i> 2019 sec. 60.14).
καὶ γὰρ σπουδῇ διαλεγόμενος ἄλλοις ἀνθρώποις, καὶ ὅτι ἀν οἴωνται εἰδέναι ἐξετάζων ἐμμέτρως, καὶ προσέχων τὸν νοῦν τοῖς τῶν φιλοσόφων, κἄν σοι μάταια φαίνεται τὰ νῦν, τάδε γ' ἐνθάδ' ἄν που καὶ εὐροις καὶ μάθοις ἢ σὺ δὴ οἴός τ' ἔση ὡς ἄριστα διαβιῶναι τὸν ἄλλον βίον.	for, by earnestly conversing with other people, examining in an appropriate way whatever they think they know, and paying attention to the studies of philosophers—even if they seem 'empty' to you for the time being—you might just discover and learn, right here, those things by which you will be able to live the rest of your life in the best possible way.	• καὶ γὰρ marking a reason as a new point (Denniston & Dover 1996 p. lii, 108–11). • γε marking ταῦτα with <u>determinative</u> emphasis (Denniston & Dover 1996 pp. 114–19, 127–30). • δὴ with personal pronoun marking statement with affirmative emphasis ('really and truly'), evident to all (Denniston & Dover 1996 pp. 207–12, 226), (Emde Boas <i>et al.</i> 2019 sec. 59.44), (Sicking & Ophuijsen 1993 pp. 82–83, 145–46).	• <i>Element 3 of grand style—composition (clausulae in this row)</i> : The cola in this row have the following clausulae: ἄλλοις ἀνθρώποις and ἐξετάζων ἐμμέτρως* both 'new style' (molossus + spondee); τῶν φιλοσόφων 'Aristotelian style' (trochee + anapaest); φαίνεται τὰ νῦν and εὐροις καὶ μάθοις, each in 'classic style' (spondee + cretic); τὸν ἄλλον βίον, 'classic style' (iamb + cretic). * Why do I say ἐμμέτρως is triple-long (rather than taking τρ together as opening the ultimate syllable, leaving the penultimate short)? Now it wouldn't matter if it that were the case (for that would simply produce a different Platonic clausula: 'classic style' with spondee + cretic), however in Dionysius of Halicarnassus' scansion of Attic prose, he treats the first three syllables of τὰ

Platonic Greek	Eng. translation	Particles	Other notes
			<p><u>προσήκοντα</u> as a cretic rather than an anapaest (i.e. πρ- making position): ὁ δ' ἐξῆς μάλλον κρητικὸς ἢ ἀνάπαιστος (D.H. <i>Comp.</i> sec. 18). It's not conclusive (as that example involves a word boundary) but suggestive.</p> <ul style="list-style-type: none"> <li>• <i>Position of ἐμμέτρως</i>: I put the adverb <i>after</i> its participle, which is an emphatic position (Yonge 1870 p. lxiii). Why do I emphasise ἐμμέτρως? Because Socrates made clear, in <i>Republic</i> bk 7 that dialectical skill in refutation should be used responsibly by mature people, rather than using it to refute whomever one comes across, like little puppies tearing apart everything they see (Pl. <i>R.</i> 539b–d). (Coincidentally, as I type this, our new puppy is doing this to my ankles; it was probably the feeling of Maltese Shih Tzu baby teeth sinking into an undefended achilles tendon which triggered my painful recall of this passage, and my use of ἐμμέτρως in this context.)</li> <li>• <i>τὰ νῦν</i>: This is not the same as νῦν: 'it has a function of its own, viz. to specify, and often limitate, the duration of (part of) the verbal action it modifies. Its general meaning is something like 'for the present, for the time being, for the time to come'. In this use it mostly follows the verb' (Rijksbaron 2007 p. 101). I follow Rijksbaron here. (Incidentally, I've found that Rijksbaron's <i>Ion</i> commentary is a treasure-trove of Platonic usage more widely—not just limited to the <i>Ion</i>—like Riddell's</li> </ul>

Platonic Greek	Eng. translation	Particles	Other notes
			<p>digest of idioms at the back of his <i>Apology</i> commentary.)</p> <ul style="list-style-type: none"> <li>• <i>No assimilation of mood</i>: The mood of ἔση is not assimilated to the optative mood of εὔροις καὶ μάθοις in the main clause, for two reasons: (1) ἦ introduces a definite rather than conditional relative clause, and (2) whereas the subjunctive in certain clauses is assimilated, a dependent indicative is, however, very seldom assimilated to a leading optative' (Goodwin 1897 sec. 176).</li> <li>• <i>Word order of final expression</i>: ὡς ἄριστα is in narrow focus and so sits before the infinitive διαβιῶναι; τὸν ἄλλον βίον is predictable information given that βίον is cognate with διαβιῶναι, and so sits after the verb (Emde Boas <i>et al.</i> 2019 sec. 60.22), nicely forming a 'classic style' clausula in the process, as I describe above.</li> </ul>

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