Metaphysics

ARISTOTLE
384–322 BC

Metaphysics

Τὰ μετὰ τὰ φυσικά

Translated from the Greek with AI (Claude) and edited



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INTRODUCTION

"All human beings by nature desire to know." So opens the *Metaphysics*, the work that gave its name to a whole branch of philosophy, though the title only means "the books after the *Physics*" in the ancient arrangement of Aristotle's writings.

Its subject is what Aristotle calls first philosophy: the study of being as being, and of the first causes and principles of everything. It includes the first history of philosophy (Book Alpha), the defense of the principle of non-contradiction (Gamma), a dictionary of key terms (Delta), the long investigation of substance, matter and form (Zeta and Eta), potentiality and actuality (Theta), and the famous account of the unmoved mover, "thinking of thinking" (Lambda).

The fourteen books are lecture treatises assembled after Aristotle's death; they are difficult, and often argue their way through puzzles rather than to settled conclusions.

Book Alpha (I)

Wisdom, causes, and the earlier philosophers.

ALL PEOPLE DESIRE TO KNOW

From perception and memory come experience and craft; knowing causes is what makes someone wise.

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980a πάντες ἄνθρωποι τοῦ εἰδέναι ὀρέγονται φύσει. σημεῖον δ' ἡ τῶν αἰσθήσεων ἀγάπησις· καὶ γὰρ χωρὶς τῆς χρείας ἀγαπῶνται δι' αὐτάς, καὶ μάλιστα τῶν ἄλλων ἡ διὰ τῶν ὀμμάτων. οὐ γὰρ μόνον ἵνα πράττωμεν ἀλλὰ καὶ μηθὲν μέλλοντες πράττειν τὸ ὁρᾶν αἱρούμεθα ἀντὶ πάντων ὡς εἰπεῖν τῶν ἄλλων. αἴτιον δ' ὅτι μάλιστα ποιεῖ γνωρίζειν ἡμᾶς αὕτη τῶν αἰσθήσεων καὶ πολλὰς δηλοῖ διαφοράς. φύσει μὲν οὖν αἴσθησιν ἔχοντα γίγνεται τὰ ζῷα, ἐκ δὲ ταύτης τοῖς μὲν αὐτῶν οὐκ ἐγγίγνεται μνήμη, τοῖς δ' ἐγγίγνεται.

All human beings by nature desire to know. A sign of this is the delight we take in our senses: even apart from their usefulness we love them for their own sake, and above all the others the sense that works through the eyes. For not only in order to act, but even when we are not going to do anything, we prefer seeing to practically everything else. The cause is that of all the senses this one most makes us know things, and reveals many differences. Animals, then, are born by nature with sense perception, and from this memory arises in some of them but not in others.

980b καὶ διὰ τοῦτο ταῦτα φρονιμώτερα καὶ μαθητικώτερα τῶν μὴ δυναμένων μνημονεύειν ἐστί, φρόνιμα μὲν ἄνευ τοῦ μανθάνειν ὅσα μὴ δύναται τῶν ψόφων ἀκούειν (οἷον μέλιττα κἂν εἴ τι τοιοῦτον ἄλλο γένος ζῴων ἔστι), μανθάνει δ' ὅσα πρὸς τῇ μνήμῃ καὶ ταύτην ἔχει τὴν αἴσθησιν. τὰ μὲν οὖν ἄλλα ταῖς φαντασίαις ζῇ καὶ ταῖς μνήμαις, ἐμπειρίας δὲ μετέχει μικρόν· τὸ δὲ τῶν ἀνθρώπων γένος καὶ τέχνῃ καὶ λογισμοῖς. γίγνεται δ' ἐκ τῆς μνήμης ἐμπειρία τοῖς ἀνθρώποις· αἱ γὰρ πολλαὶ μνῆμαι τοῦ αὐτοῦ πράγματος μιᾶς ἐμπειρίας δύναμιν ἀποτελοῦσιν. 981a καὶ δοκεῖ σχεδὸν ἐπιστήμῃ καὶ τέχνῃ ὅμοιον εἶναι καὶ ἐμπειρία, ἀποβαίνει δ' ἐπιστήμη καὶ τέχνη διὰ τῆς ἐμπειρίας τοῖς ἀνθρώποις· ἡ μὲν γὰρ ἐμπειρία τέχνην ἐποίησεν, ὡς φησὶ Πῶλος, ἡ δ' ἀπειρία τύχην.

And for this reason these are more intelligent and more apt at learning than those that cannot remember. Those that cannot hear sounds are intelligent without learning (the bee, for example, and any other kind of animal that may be like it); those that have this sense as well as memory can learn. The other animals, then, live by appearances and memories, and have only a small share of experience; but the human race lives also by craft and reasoning. In human beings experience comes from memory: many memories of the same thing amount to the capacity of a single experience. 981a Experience seems to be much like scientific knowledge and craft; but in fact scientific knowledge and craft come to human beings through experience. For "experience made craft," as Polus says, "and inexperience, luck."[1]

981a γίγνεται δὲ τέχνη ὅταν ἐκ πολλῶν τῆς ἐμπειρίας ἐννοημάτων μία καθόλου γένηται περὶ τῶν ὁμοίων ὑπόληψις. τὸ μὲν γὰρ ἔχειν ὑπόληψιν ὅτι Καλλίᾳ κάμνοντι τηνδὶ τὴν νόσον τοδὶ συνήνεγκε καὶ Σωκράτει καὶ καθ' ἕκαστον οὕτω πολλοῖς, ἐμπειρίας ἐστίν· τὸ δ' ὅτι πᾶσι τοῖς τοιοῖσδε κατ' εἶδος ἓν ἀφορισθεῖσι, κάμνουσι τηνδὶ τὴν νόσον, συνήνεγκεν, οἷον τοῖς φλεγματώδεσιν ἢ

Craft arises when, out of many notions gained by experience, a single universal judgment about similar cases is formed. To judge that when Callias was sick with this disease this remedy helped him, and so too with Socrates, and likewise in many individual cases, belongs to experience. But to judge that it helped all people of a certain type, marked

1 Polus: a teacher of rhetoric and pupil of Gorgias; he speaks in Plato's *Gorgias*, where a similar line is attributed to him.

GREEK

χολώδεσι [ἢ] πυρέττουσι καύσῳ, τέχνης.—πρὸς μὲν οὖν τὸ πράττειν ἐμπειρία τέχνης οὐδὲν δοκεῖ διαφέρειν, ἀλλὰ καὶ μᾶλλον ἐπιτυγχάνουσιν οἱ ἔμπειροι τῶν ἄνευ τῆς ἐμπειρίας λόγον ἐχόντων (αἴτιον δ' ὅτι ἡ μὲν ἐμπειρία τῶν καθ' ἕκαστόν ἐστι γνῶσις ἡ δὲ τέχνη τῶν καθόλου, αἱ δὲ πράξεις καὶ αἱ γενέσεις πᾶσαι περὶ τὸ καθ' ἕκαστόν εἰσιν·

οὐ γὰρ ἄνθρωπον ὑγιάζει ὁ ἰατρεύων ἀλλ' ἢ κατὰ συμβεβηκός, ἀλλὰ Καλλίαν ἢ Σωκράτην ἢ τῶν ἄλλων τινὰ τῶν οὕτω λεγομένων ᾧ συμβέβηκεν ἀνθρώπῳ εἶναι· ἐὰν οὖν ἄνευ τῆς ἐμπειρίας ἔχῃ τις τὸν λόγον, καὶ τὸ καθόλου μὲν γνωρίζῃ τὸ δ' ἐν τούτῳ καθ' ἕκαστον ἀγνοῇ, πολλάκις διαμαρτήσεται τῆς θεραπείας· θεραπευτὸν γὰρ τὸ καθ' ἕκαστον)· ἀλλ' ὅμως τό γε εἰδέναι καὶ τὸ ἐπαΐειν τῇ τέχνῃ τῆς ἐμπειρίας ὑπάρχειν οἰόμεθα μᾶλλον, καὶ σοφωτέρους τοὺς τεχνίτας τῶν ἐμπείρων ὑπολαμβάνομεν, ὡς κατὰ τὸ εἰδέναι μᾶλλον ἀκολουθοῦσαν τὴν σοφίαν πᾶσι· τοῦτο δ' ὅτι οἱ μὲν τὴν αἰτίαν ἴσασιν οἱ δ' οὔ.

οἱ μὲν γὰρ ἔμπειροι τὸ ὅτι μὲν ἴσασι, διότι δ' οὐκ ἴσασιν· οἱ δὲ τὸ διότι καὶ τὴν αἰτίαν γνωρίζουσιν. διὸ καὶ τοὺς ἀρχιτέκτονας περὶ ἕκαστον τιμιωτέρους καὶ μᾶλλον εἰδέναι νομίζομεν τῶν χειροτεχνῶν καὶ σοφωτέρους, 981b ὅτι τὰς αἰτίας τῶν ποιουμένων ἴσασιν (τοὺς δ', ὥσπερ καὶ τῶν ἀψύχων ἔνια ποιεῖ μέν, οὐκ εἰδότα δὲ ποιεῖ ἃ ποιεῖ, οἷον καίει τὸ πῦρ—τὰ μὲν οὖν ἄψυχα φύσει τινὶ ποιεῖν τούτων ἕκαστον τοὺς δὲ χειροτέχνας δι' ἔθος), ὡς οὐ κατὰ τὸ πρακτικοὺς εἶναι σοφωτέρους ὄντας ἀλλὰ κατὰ τὸ λόγον ἔχειν αὐτοὺς καὶ τὰς αἰτίας γνωρίζειν. ὅλως τε σημεῖον τοῦ εἰδότος καὶ μὴ εἰδότος τὸ δύνασθαι διδάσκειν ἐστίν, καὶ διὰ τοῦτο τὴν τέχνην τῆς ἐμπειρίας ἡγούμεθα μᾶλλον ἐπιστήμην εἶναι· δύνανται γάρ, οἱ δὲ οὐ δύνανται διδάσκειν.

981b ἔτι δὲ τῶν αἰσθήσεων οὐδεμίαν ἡγούμεθα εἶναι σοφίαν· καίτοι κυριώταταί γ' εἰσὶν αὗται τῶν καθ' ἕκαστα γνώσεις· ἀλλ' οὐ λέγουσι τὸ διὰ τί περὶ οὐδενός, οἷον διὰ τί θερμὸν τὸ πῦρ, ἀλλὰ μόνον ὅτι θερμόν. τὸ μὲν οὖν πρῶτον εἰκὸς τὸν ὁποιανοῦν εὑρόντα τέχνην παρὰ τὰς κοινὰς αἰσθήσεις θαυμάζεσθαι ὑπὸ τῶν ἀνθρώπων μὴ

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off as a single class, when they were sick with this disease—the phlegmatic, for instance, or the bilious when burning with fever—belongs to craft. With a view to action, experience seems not to differ at all from craft; in fact people with experience succeed better than those who have the rational account without the experience. (The cause is that experience is knowledge of particulars, while craft is knowledge of universals; and actions and productions are all concerned with the particular.

For the doctor does not cure a human being, except incidentally, but Callias or Socrates or someone else called by a name of this sort, who happens also to be a human being. So if someone has the account without the experience, and knows the universal but does not recognize the particular within it, he will often fail in his treatment; for it is the particular that is to be treated.) Nevertheless we think that knowing and understanding belong to craft rather than to experience, and we take craftsmen to be wiser than people of experience—on the assumption that in every case wisdom goes more with knowing. And this is because the former know the cause and the latter do not.

People of experience know the fact that, but not the reason why; the others recognize the why, the cause. That is also why we think the master craftsmen in each field are more to be honored than the manual workers, know more, and are wiser, 981b because they know the causes of what is being made. (The manual workers we think of as being like certain lifeless things that act, but act without knowing what they do, as fire burns—except that lifeless things do each of these things by a kind of nature, and manual workers through habit.) So they are wiser not by being practical but by having the account and knowing the causes. In general, a sign of the one who knows as against the one who does not is the ability to teach; and for this reason we think craft, rather than experience, is scientific knowledge. For craftsmen can teach, and the others cannot.

Again, we do not regard any of the senses as wisdom, though they are the most authoritative knowledge of particulars. But they do not tell us the why of anything—why fire is hot, for instance—but only that it is hot. It is likely, then, that at first whoever discovered any craft beyond the

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μόνον διὰ τὸ χρήσιμον εἶναί τι τῶν εὑρεθέντων ἀλλ' ὡς σοφὸν καὶ διαφέροντα τῶν ἄλλων· πλειόνων δ' εὑρισκομένων τεχνῶν καὶ τῶν μὲν πρὸς τἀναγκαῖα τῶν δὲ πρὸς διαγωγὴν οὐσῶν, ἀεὶ σοφωτέρους τοὺς τοιούτους ἐκείνων ὑπολαμβάνεσθαι διὰ τὸ μὴ πρὸς χρῆσιν εἶναι τὰς ἐπιστήμας αὐτῶν.

ὅθεν ἤδη πάντων τῶν τοιούτων κατεσκευασμένων αἱ μὴ πρὸς ἡδονὴν μηδὲ πρὸς τἀναγκαῖα τῶν ἐπιστημῶν εὑρέθησαν, καὶ πρῶτον ἐν τούτοις τοῖς τόποις οὗ πρῶτον ἐσχόλασαν· διὸ περὶ Αἴγυπτον αἱ μαθηματικαὶ πρῶτον τέχναι συνέστησαν, ἐκεῖ γὰρ ἀφείθη σχολάζειν τὸ τῶν ἱερέων ἔθνος. εἴρηται μὲν οὖν ἐν τοῖς ἠθικοῖς τίς διαφορὰ τέχνης καὶ ἐπιστήμης καὶ τῶν ἄλλων τῶν ὁμογενῶν· οὗ δ' ἕνεκα νῦν ποιούμεθα τὸν λόγον τοῦτ' ἐστίν, ὅτι τὴν ὀνομαζομένην σοφίαν περὶ τὰ πρῶτα αἴτια καὶ τὰς ἀρχὰς ὑπολαμβάνουσι πάντες· ὥστε, καθάπερ εἴρηται πρότερον, ὁ μὲν ἔμπειρος τῶν ὁποιανοῦν ἐχόντων αἴσθησιν εἶναι δοκεῖ σοφώτερος, ὁ δὲ τεχνίτης τῶν ἐμπείρων, χειροτέχνου δὲ ἀρχιτέκτων, αἱ δὲ θεωρητικαὶ τῶν ποιητικῶν μᾶλλον. 982a ὅτι μὲν οὖν ἡ σοφία περί τινας ἀρχὰς καὶ αἰτίας ἐστὶν ἐπιστήμη, δῆλον.

ENGLISH

common perceptions was admired by people, not only because some of his discoveries were useful, but as wise and superior to the rest. And as more crafts were discovered, some for the necessities of life and some for the pastimes of leisure, the discoverers of the latter were always regarded as wiser than those of the former, because their kinds of knowledge were not directed toward use.

Hence, when all such crafts were already established, the sciences that aim neither at pleasure nor at the necessities were discovered, and first in the places where people first had leisure. That is why the mathematical crafts first took shape in Egypt: there the priestly caste was allowed leisure. We have said in the *Ethics* what the difference is between craft and science and the other kindred states. The point of our present discussion is this: everyone supposes that what is called wisdom is concerned with the first causes and the principles. So, as we said before, the person of experience is thought to be wiser than those who have any sense perception at all, the craftsman wiser than people of experience, the master craftsman wiser than the manual worker, and the theoretical kinds of knowledge more so than the productive. 982a It is clear, then, that wisdom is scientific knowledge about certain principles and causes.[2]

WHAT WISDOM IS

Wisdom is the most universal, precise and free science of first causes, and it begins in wonder.

GREEK

982a ἐπεὶ δὲ ταύτην τὴν ἐπιστήμην ζητοῦμεν, τοῦτ' ἂν εἴη σκεπτέον, ἡ περὶ ποίας αἰτίας καὶ περὶ ποίας ἀρχὰς ἐπιστήμη σοφία ἐστίν. εἰ δὴ λάβοι τις τὰς ὑπολήψεις ἃς ἔχομεν περὶ τοῦ σοφοῦ, τάχ' ἂν ἐκ τούτου φανερὸν γένοιτο μᾶλλον.

ὑπολαμβάνομεν δὴ πρῶτον μὲν ἐπίστασθαι πάντα τὸν σοφὸν ὡς ἐνδέχεται, μὴ καθ' ἕκαστον ἔχοντα ἐπιστήμην αὐτῶν· εἶτα τὸν τὰ χαλεπὰ γνῶναι δυνάμενον καὶ μὴ ῥᾴδια ἀνθρώπῳ γιγνώσκειν, τοῦτον σοφόν (τὸ γὰρ αἰσθάνεσθαι πάντων κοινόν, διὸ ῥᾴδιον καὶ οὐδὲν σοφόν)· ἔτι τὸν ἀκριβέστερον καὶ τὸν διδασκαλικώτερον τῶν αἰτιῶν σοφώτερον εἶναι περὶ πᾶσαν ἐπιστήμην· καὶ τῶν ἐπιστημῶν δὲ τὴν αὐτῆς ἕνεκεν καὶ τοῦ εἰδέναι χάριν αἱρετὴν οὖσαν μᾶλλον εἶναι σοφίαν ἢ τὴν τῶν ἀποβαινόντων ἕνεκεν, καὶ τὴν ἀρχικωτέραν τῆς

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Since this is the knowledge we are seeking, we should examine what kind of causes and what kind of principles wisdom is the knowledge of. If we take the views we hold about the wise person, perhaps this will become clearer.

We suppose, first, that the wise person knows all things, as far as possible, without having knowledge of each of them individually. Next, that the one who can know difficult things, things not easy for a human being to know, is wise (perceiving is common to everyone, which is why it is easy and nothing wise). Again, that in every branch of knowledge the one who is more precise and better able to teach the causes is wiser. And that among the sciences, the one chosen for its own sake and

2 The *Ethics*: Aristotle's *Nicomachean Ethics*, whose sixth book distinguishes craft, science and the other intellectual states.

GREEK

ENGLISH

ὑπηρετούσης μᾶλλον σοφίαν· οὐ γὰρ δεῖν ἐπιτάττεσθαι τὸν σοφὸν ἀλλ' ἐπιτάττειν, καὶ οὐ τοῦτον ἑτέρῳ πείθεσθαι, ἀλλὰ τούτῳ τὸν ἧττον σοφόν.

for the sake of knowing is more truly wisdom than the one chosen for its results, and the more commanding is more truly wisdom than the subordinate. For the wise person must not be ordered but must give orders; he must not obey another, but the less wise must obey him.

—τὰς μὲν οὖν ὑπολήψεις τοιαύτας καὶ τοσαύτας ἔχομεν περὶ τῆς σοφίας καὶ τῶν σοφῶν· τούτων δὲ τὸ μὲν πάντα ἐπίστασθαι τῷ μάλιστα ἔχοντι τὴν καθόλου ἐπιστήμην ἀναγκαῖον ὑπάρχειν (οὗτος γὰρ οἶδέ πως πάντα τὰ ὑποκείμενα), σχεδὸν δὲ καὶ χαλεπώτατα ταῦτα γνωρίζειν τοῖς ἀνθρώποις, τὰ μάλιστα καθόλου (πορρωτάτω γὰρ τῶν αἰσθήσεών ἐστιν), ἀκριβέσταται δὲ τῶν ἐπιστημῶν αἳ μάλιστα τῶν πρώτων εἰσίν (αἱ γὰρ ἐξ ἐλαττόνων ἀκριβέστεραι τῶν ἐκ προσθέσεως λεγομένων, οἷον ἀριθμητικὴ γεωμετρίας)·

—These, then, are the kind and number of views we hold about wisdom and the wise. Of these features, knowing all things must belong to the one who has universal knowledge in the highest degree, for he knows in a way all the things that fall under it. And these things, the most universal, are also pretty much the hardest for human beings to know, since they are farthest from the senses. The most precise of the sciences are those most concerned with first things; for sciences that start from fewer principles are more precise than those that involve additional ones—arithmetic, for instance, than geometry.

ἀλλὰ μὴν καὶ διδασκαλική γε ἡ τῶν αἰτιῶν θεωρητικὴ μᾶλλον (οὗτοι γὰρ διδάσκουσιν, οἱ τὰς αἰτίας λέγοντες περὶ ἑκάστου), τὸ δ' εἰδέναι καὶ τὸ ἐπίστασθαι αὐτῶν ἕνεκα μάλισθ' ὑπάρχει τῇ τοῦ μάλιστα ἐπιστητοῦ ἐπιστήμῃ (ὁ γὰρ τὸ ἐπίστασθαι δι' αὐτὸ αἱρούμενος τὴν μάλιστα ἐπιστήμην μάλιστα αἱρήσεται, [982b] τοιαύτη δ' ἐστὶν ἡ τοῦ μάλιστα ἐπιστητου), μάλιστα δ' ἐπιστητὰ τὰ πρῶτα καὶ τὰ αἴτια (διὰ γὰρ ταῦτα καὶ ἐκ τούτων τἆλλα γνωρίζεται ἀλλ' οὐ ταῦτα διὰ τῶν ὑποκειμένων), ἀρχικωτάτη δὲ τῶν ἐπιστημῶν, καὶ μᾶλλον ἀρχικὴ τῆς ὑπηρετούσης, ἡ γνωρίζουσα τίνος ἕνεκέν ἐστι πρακτέον ἕκαστον· τοῦτο δ' ἐστὶ τἀγαθὸν ἑκάστου, ὅλως δὲ τὸ ἄριστον ἐν τῇ φύσει πάσῃ.

Again, the science that studies causes is also better able to teach, since the people who teach are those who state the causes of each thing. And knowing and understanding for their own sake belong most of all to the knowledge of what is most knowable. (For someone who chooses knowing for its own sake will choose most of all the knowledge that is most truly knowledge, [982b] and that is the knowledge of what is most knowable.) And the most knowable things are the first things and the causes; for it is through these and from these that other things are known, not these through the things that fall under them. The most commanding of the sciences, more commanding than any subordinate one, is the one that knows for the sake of what each thing must be done; and this is the good of each thing, and, in general, the best in the whole of nature.

982b ἐξ ἁπάντων οὖν τῶν εἰρημένων ἐπὶ τὴν αὐτὴν ἐπιστήμην πίπτει τὸ ζητούμενον ὄνομα· δεῖ γὰρ ταύτην τῶν πρώτων ἀρχῶν καὶ αἰτιῶν εἶναι θεωρητικήν· καὶ γὰρ τἀγαθὸν καὶ τὸ οὗ ἕνεκα ἓν τῶν αἰτίων ἐστίν.

From everything that has been said, then, the name we are looking for falls to one and the same science. It must be the one that studies the first principles and causes; for the good—that for the sake of which—is also one of the causes.

ὅτι δ' οὐ ποιητική, δῆλον καὶ ἐκ τῶν πρώτων φιλοσοφησάντων· διὰ γὰρ τὸ θαυμάζειν οἱ ἄνθρωποι καὶ νῦν καὶ τὸ πρῶτον ἤρξαντο φιλοσοφεῖν, ἐξ ἀρχῆς μὲν τὰ πρόχειρα τῶν ἀτόπων θαυμάσαντες, εἶτα κατὰ μικρὸν οὕτω προϊόντες καὶ περὶ τῶν μειζόνων διαπορήσαντες, οἷον περί τε τῶν τῆς σελήνης παθημάτων καὶ τῶν περὶ

That it is not a productive science is clear even from the first people to philosophize. It is through wonder that human beings, now as at first, began to philosophize. At the start they wondered at the oddities close at hand; then, advancing little by little, they raised puzzles about greater matters,

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τὸν ἥλιον καὶ ἄστρα καὶ περὶ τῆς τοῦ παντὸς γενέσεως. ὁ δ' ἀπορῶν καὶ θαυμάζων οἴεται ἀγνοεῖν (διὸ καὶ ὁ φιλόμυθος φιλόσοφός πώς ἐστιν· ὁ γὰρ μῦθος σύγκειται ἐκ θαυμασίων)· ὥστ' εἴπερ διὰ τὸ φεύγειν τὴν ἄγνοιαν ἐφιλοσόφησαν, φανερὸν ὅτι διὰ τὸ εἰδέναι τὸ ἐπίστασθαι ἐδίωκον καὶ οὐ χρήσεώς τινος ἕνεκεν. μαρτυρεῖ δὲ αὐτὸ τὸ συμβεβηκός· σχεδὸν γὰρ πάντων ὑπαρχόντων τῶν ἀναγκαίων καὶ πρὸς ῥᾳστώνην καὶ διαγωγὴν ἡ τοιαύτη φρόνησις ἤρξατο ζητεῖσθαι.

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such as the changes of the moon and those of the sun and stars, and the coming-to-be of the universe. Someone who is puzzled and wonders thinks himself ignorant (which is why the lover of myth is in a way a lover of wisdom, since myth is made of wonders). So if they philosophized to escape ignorance, they were evidently pursuing understanding for the sake of knowing, and not for any use. What actually happened bears this out: it was when almost all the necessities, and the things that make for ease and leisure, were already available that this kind of understanding began to be sought.

δῆλον οὖν ὡς δι' οὐδεμίαν αὐτὴν ζητοῦμεν χρείαν ἑτέραν, ἀλλ' ὥσπερ ἄνθρωπος, φαμέν, ἐλεύθερος ὁ αὐτοῦ ἕνεκα καὶ μὴ ἄλλου ὤν, οὕτω καὶ αὐτὴν ὡς μόνην οὖσαν ἐλευθέραν τῶν ἐπιστημῶν· μόνη γὰρ αὕτη αὐτῆς ἕνεκέν ἐστιν. διὸ καὶ δικαίως ἂν οὐκ ἀνθρωπίνη νομίζοιτο αὐτῆς ἡ κτῆσις· πολλαχῇ γὰρ ἡ φύσις δούλη τῶν ἀνθρώπων ἐστίν, ὥστε κατὰ Σιμωνίδην θεὸς ἂν μόνος τοῦτ' ἔχοι γέρας, ἄνδρα δ' οὐκ ἄξιον μὴ οὐ ζητεῖν τὴν καθ' αὑτὸν ἐπιστήμην. εἰ δὴ λέγουσί τι οἱ ποιηταὶ καὶ πέφυκε φθονεῖν τὸ θεῖον, [983a] ἐπὶ τούτου συμβῆναι μάλιστα εἰκὸς καὶ δυστυχεῖς εἶναι πάντας τοὺς περιττούς. ἀλλ' οὔτε τὸ θεῖον φθονερὸν ἐνδέχεται εἶναι, ἀλλὰ κατὰ τὴν παροιμίαν πολλὰ ψεύδονται ἀοιδοί, οὔτε τῆς τοιαύτης ἄλλην χρὴ νομίζειν τιμιωτέραν.

Clearly, then, we seek it for no other use. Just as we call a person free who exists for his own sake and not for another's, so we pursue this as the only free science, since it alone exists for its own sake. That is why its possession might justly be thought to be beyond human reach; for in many ways human nature is in bondage, so that, as Simonides says, "a god alone could have this prize"—yet it is unworthy of a man not to seek the knowledge that befits him. Now if the poets have a point, and the divine is by nature jealous, [983a] it would be likely to happen here above all, and all who excel would be unfortunate. But the divine cannot be jealous—as the proverb has it, "bards tell many lies"—nor should any other knowledge be thought more honorable than this.[3]

983a ἡ γὰρ θειοτάτη καὶ τιμιωτάτη· τοιαύτη δὲ διχῶς ἂν εἴη μόνη· ἥν τε γὰρ μάλιστ' ἂν ὁ θεὸς ἔχοι, θεία τῶν ἐπιστημῶν ἐστί, κἂν εἴ τις τῶν θείων εἴη. μόνη δ' αὕτη τούτων ἀμφοτέρων τετύχηκεν· ὅ τε γὰρ θεὸς δοκεῖ τῶν αἰτίων πᾶσιν εἶναι καὶ ἀρχή τις, καὶ τὴν τοιαύτην ἢ μόνος ἢ μάλιστ' ἂν ἔχοι ὁ θεός. ἀναγκαιότεραι μὲν οὖν πᾶσαι ταύτης, ἀμείνων δ' οὐδεμία.—δεῖ μέντοι πως καταστῆναι τὴν κτῆσιν αὐτῆς εἰς τοὐναντίον ἡμῖν τῶν ἐξ ἀρχῆς ζητήσεων.

For the most divine science is also the most honorable, and there are only two ways in which a science could be such. A science is divine if it is the one the god would most of all have, or if it is about divine things. This science alone has both features. The god is thought by everyone to be among the causes and to be a kind of principle, and it is the god, either alone or most of all, who would have such knowledge. All the other sciences, then, are more necessary than this one, but none is better.—Yet the acquisition of it must in a way bring us to the opposite of where our inquiries began.

ἄρχονται μὲν γάρ, ὥσπερ εἴπομεν, ἀπὸ τοῦ θαυμάζειν πάντες εἰ οὕτως ἔχει, καθάπερ ⟨περὶ⟩ τῶν θαυμάτων ταὐτόματα [τοῖς μήπω τεθεωρηκόσι τὴν αἰτίαν] ἢ περὶ τὰς τοῦ ἡλίου τροπὰς ἢ τὴν τῆς διαμέτρου ἀσυμμετρίαν (θαυμαστὸν γὰρ εἶναι δοκεῖ πᾶσι ⟨τοῖς μήπω τεθεωρηκόσι τὴν αἰτίαν⟩ εἴ τι τῷ ἐλαχίστῳ μὴ μετρεῖται)· δεῖ δὲ εἰς

For everyone begins, as we said, by wondering whether things are really so—as with self-moving puppets, or the turnings of the sun, or the incommensurability of the diagonal (for it seems a wonder to all who have not yet studied the cause that something should not be measured even by the

3 Simonides of Ceos: a lyric poet of the sixth and fifth centuries BC.

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τοὐναντίον καὶ τὸ ἄμεινον κατὰ τὴν παροιμίαν ἀποτελευτῆσαι, καθάπερ καὶ ἐν τούτοις ὅταν μάθωσιν· οὐθὲν γὰρ ἂν οὕτως θαυμάσειεν ἀνὴρ γεωμετρικὸς ὡς εἰ γένοιτο ἡ διάμετρος μετρητή. τίς μὲν οὖν ἡ φύσις τῆς ἐπιστήμης τῆς ζητουμένης, εἴρηται, καὶ τίς ὁ σκοπὸς οὗ δεῖ τυγχάνειν τὴν ζήτησιν καὶ τὴν ὅλην μέθοδον.

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smallest unit). But we must end in the opposite and, as the proverb has it, the better state, as happens in these cases too once people learn: nothing would astonish a geometer so much as if the diagonal turned out to be commensurable. We have stated, then, what the nature of the science we are seeking is, and what goal the inquiry and the whole investigation must reach.[4]

THE FOUR CAUSES AND THE FIRST PHILOSOPHERS

Aristotle names four kinds of cause and reviews early thinkers who sought a material principle.

GREEK

ἐπεὶ δὲ φανερὸν ὅτι τῶν ἐξ ἀρχῆς αἰτίων δεῖ λαβεῖν ἐπιστήμην (τότε γὰρ εἰδέναι φαμὲν ἕκαστον, ὅταν τὴν πρώτην αἰτίαν οἰώμεθα γνωρίζειν), τὰ δ' αἴτια λέγεται τετραχῶς, ὧν μίαν μὲν αἰτίαν φαμὲν εἶναι τὴν οὐσίαν καὶ τὸ τί ἦν εἶναι (ἀνάγεται γὰρ τὸ διὰ τί εἰς τὸν λόγον ἔσχατον, αἴτιον δὲ καὶ ἀρχὴ τὸ διὰ τί πρῶτον), ἑτέραν δὲ τὴν ὕλην καὶ τὸ ὑποκείμενον, τρίτην δὲ ὅθεν ἡ ἀρχὴ τῆς κινήσεως, τετάρτην δὲ τὴν ἀντικειμένην αἰτίαν ταύτῃ, τὸ οὗ ἕνεκα καὶ τἀγαθόν (τέλος γὰρ γενέσεως καὶ κινήσεως πάσης τοῦτ' ἐστίν), τεθεώρηται μὲν οὖν ἱκανῶς περὶ αὐτῶν ἡμῖν ἐν τοῖς περὶ φύσεως, 983b ὅμως δὲ παραλάβωμεν καὶ τοὺς πρότερον ἡμῶν εἰς ἐπίσκεψιν τῶν ὄντων ἐλθόντας καὶ φιλοσοφήσαντας περὶ τῆς ἀληθείας.

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It is clear that we must acquire knowledge of the original causes, since we say we know each thing when we think we recognize its first cause. Causes are spoken of in four ways. One of them, we say, is the substance, the essence (for the why is traced back ultimately to the account, and the primary why is a cause and principle). A second is the matter, the underlying subject. The third is the source from which motion begins. The fourth is the cause opposite to this: that for the sake of which, the good (for this is the end of all coming-to-be and motion). We have studied these sufficiently in our works on nature; 983b nevertheless, let us call in as well those who before us undertook the investigation of the things that are and philosophized about the truth.[5]

983b δῆλον γὰρ ὅτι κἀκεῖνοι λέγουσιν ἀρχάς τινας καὶ αἰτίας· ἐπελθοῦσιν οὖν ἔσται τι προὔργου τῇ μεθόδῳ τῇ νῦν· ἢ γὰρ ἕτερόν τι γένος εὑρήσομεν αἰτίας ἢ ταῖς νῦν λεγομέναις μᾶλλον πιστεύσομεν.—τῶν δὴ πρώτων φιλοσοφησάντων οἱ πλεῖστοι τὰς ἐν ὕλης εἴδει μόνας ὡήθησαν ἀρχὰς εἶναι πάντων· ἐξ οὗ γὰρ ἔστιν ἅπαντα τὰ ὄντα καὶ ἐξ οὗ γίγνεται πρώτου καὶ εἰς ὃ φθείρεται τελευταῖον, τῆς μὲν οὐσίας ὑπομενούσης τοῖς δὲ πάθεσι μεταβαλλούσης, τοῦτο στοιχεῖον καὶ ταύτην ἀρχήν φασιν εἶναι τῶν ὄντων, καὶ διὰ τοῦτο οὔτε γίγνεσθαι οὐθὲν οἴονται οὔτε ἀπόλλυσθαι, ὡς τῆς τοιαύτης φύσεως ἀεὶ σωζομένης, ὥσπερ οὐδὲ τὸν Σωκράτην φαμὲν οὔτε γίγνεσθαι ἁπλῶς ὅταν γίγνηται καλὸς ἢ μουσικὸς οὔτε ἀπόλλυσθαι ὅταν ἀποβάλλῃ ταύτας τὰς ἕξεις, διὰ τὸ ὑπομένειν τὸ ὑποκείμενον τὸν Σωκράτην αὐτόν, οὕτως οὐδὲ τῶν ἄλλων οὐδέν· ἀεὶ γὰρ εἶναί τινα φύσιν ἢ μίαν ἢ πλείους μιᾶς ἐξ ὧν γίγνεται τἆλλα σωζομένης ἐκείνης.

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For clearly they too speak of certain principles and causes. Going over their views, then, will be of some help to our present investigation: either we shall find some other kind of cause, or we shall have more confidence in those we are now stating. —Most of the first philosophers thought that the only principles of all things were principles in the form of matter. That of which all things that are consist, from which they first come to be and into which they finally perish—the substance persisting while it changes in its attributes—this, they say, is the element and the principle of the things that are. And for this reason they think that nothing comes to be or perishes, since such a nature is always preserved. In the same way, we do not say that Socrates comes to be without qualification when he becomes handsome or cultured, or per-

4 The diagonal of a square cannot be measured by any unit that also measures its side exactly.
5 "Substance" renders *ousia*, literally "being-ness"; "essence" renders *to ti ēn einai*, literally "the what-it-was-to-be."

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ishes when he loses these states, because the underlying subject, Socrates himself, persists; and so with everything else. For there is always some nature, either one or more than one, from which the other things come to be while it is preserved.

τὸ μέντοι πλῆθος καὶ τὸ εἶδος τῆς τοιαύτης ἀρχῆς οὐ τὸ αὐτὸ πάντες λέγουσιν, ἀλλὰ Θαλῆς μὲν ὁ τῆς τοιαύτης ἀρχηγὸς φιλοσοφίας ὕδωρ φησὶν εἶναι (διὸ καὶ τὴν γῆν ἐφ' ὕδατος ἀπεφήνατο εἶναι), λαβὼν ἴσως τὴν ὑπόληψιν ταύτην ἐκ τοῦ πάντων ὁρᾶν τὴν τροφὴν ὑγρὰν οὖσαν καὶ αὐτὸ τὸ θερμὸν ἐκ τούτου γιγνόμενον καὶ τούτῳ ζῶν (τὸ δ' ἐξ οὗ γίγνεται, τοῦτ' ἐστὶν ἀρχὴ πάντων)—διά τε δὴ τοῦτο τὴν ὑπόληψιν λαβὼν ταύτην καὶ διὰ τὸ πάντων τὰ σπέρματα τὴν φύσιν ὑγρὰν ἔχειν, τὸ δ' ὕδωρ ἀρχὴν τῆς φύσεως εἶναι τοῖς ὑγροῖς.

Not all of them, however, say the same about the number and the kind of such a principle. Thales, the founder of this sort of philosophy, says it is water (which is why he declared that the earth rests on water). He perhaps got this idea from seeing that the nourishment of all things is moist, and that heat itself comes to be from moisture and lives by it (and that from which things come to be is the principle of all things)—he got the idea from this, then, and also from the fact that the seeds of all things have a moist nature, and water is the principle of the nature of moist things.[6]

εἰσὶ δέ τινες οἳ καὶ τοὺς παμπαλαίους καὶ πολὺ πρὸ τῆς νῦν γενέσεως καὶ πρώτους θεολογήσαντας οὕτως οἴονται περὶ τῆς φύσεως ὑπολαβεῖν· Ὠκεανόν τε γὰρ καὶ Τηθὺν ἐποίησαν τῆς γενέσεως πατέρας, καὶ τὸν ὅρκον τῶν θεῶν ὕδωρ, τὴν καλουμένην ὑπ' αὐτῶν Στύγα [τῶν ποιητῶν]· τιμιώτατον μὲν γὰρ τὸ πρεσβύτατον, ὅρκος δὲ τὸ τιμιώτατόν ἐστιν.

Some think that even the very ancient people, who lived long before the present generation and were the first to give accounts of the gods, held this view about nature. For they made Ocean and Tethys the parents of coming-to-be, and made the oath of the gods to be by water—what they call Styx. For what is oldest is most honored, and what one swears by is the most honored thing.[7]

984a εἰ μὲν οὖν ἀρχαία τις αὕτη καὶ παλαιὰ τετύχηκεν οὖσα περὶ τῆς φύσεως ἡ δόξα, τάχ' ἂν ἄδηλον εἴη, Θαλῆς μέντοι λέγεται οὕτως ἀποφήνασθαι περὶ τῆς πρώτης αἰτίας (Ἵππωνα γὰρ οὐκ ἄν τις ἀξιώσειε θεῖναι μετὰ τούτων διὰ τὴν εὐτέλειαν αὐτοῦ τῆς διανοίας)· Ἀναξιμένης δὲ ἀέρα καὶ Διογένης πρότερον ὕδατος καὶ μάλιστ' ἀρχὴν τιθέασι τῶν ἁπλῶν σωμάτων, Ἵππασος δὲ πῦρ ὁ Μεταποντῖνος καὶ Ἡράκλειτος ὁ Ἐφέσιος, Ἐμπεδοκλῆς δὲ τὰ τέτταρα, πρὸς τοῖς εἰρημένοις γῆν προστιθεὶς τέταρτον (ταῦτα γὰρ ἀεὶ διαμένειν καὶ οὐ γίγνεσθαι ἀλλ' ἢ πλήθει καὶ ὀλιγότητι, συγκρινόμενα καὶ διακρινόμενα εἰς ἕν τε καὶ ἐξ ἑνός)·

Whether this view of nature really is primitive and ancient may perhaps be unclear; but Thales at any rate is said to have expressed himself in this way about the first cause. (Hippo no one would think fit to place among these thinkers, because of the poverty of his thought.) Anaximenes and Diogenes make air prior to water, and the principle above all others among the simple bodies; Hippasus of Metapontum and Heraclitus of Ephesus make it fire; Empedocles makes it the four, adding earth as a fourth to those mentioned. For these, he says, always persist and do not come to be, except in being more or fewer, as they are combined into one and separated out of one;[8]

Ἀναξαγόρας δὲ ὁ Κλαζομένιος τῇ μὲν ἡλικίᾳ πρότερος ὢν τούτου τοῖς δ' ἔργοις ὕστερος ἀπείρους εἶναί φησι τὰς ἀρχάς· σχεδὸν γὰρ ἅπαντα τὰ ὁμοιομερῆ καθάπερ ὕδωρ ἢ πῦρ οὕτω γίγνεσθαι καὶ ἀπόλλυσθαί φησι, συγκρίσει καὶ διακρίσει μόνον, ἄλλως δ' οὔτε γίγνεσθαι οὔτ' ἀπόλλυσθαι ἀλλὰ διαμένειν ἀΐδια.—ἐκ μὲν οὖν τούτων

Anaxagoras of Clazomenae, who was older than Empedocles but later in his works, says the principles are infinite in number. For he says that almost all things made of like parts come to be and perish in the way water or fire do, only by combination and separation, and otherwise neither come

6 Thales of Miletus (early sixth century BC) was traditionally counted the first Greek philosopher.
7 Ocean and Tethys are primeval deities in Homer; Styx is the underworld river by which the gods swore their most binding oaths.
8 These are early Greek thinkers of the sixth and fifth centuries BC; Diogenes is Diogenes of Apollonia.

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	μόνην τις αἰτίαν νομίσειεν ἂν τὴν ἐν ὕλης εἴδει λεγομένην· προϊόντων δ' οὕτως, αὐτὸ τὸ πρᾶγμα ὡδοποίησεν αὐτοῖς καὶ συνηνάγκασε ζητεῖν· εἰ γὰρ ὅτι μάλιστα πᾶσα γένεσις καὶ φθορὰ ἔκ τινος ἑνὸς ἢ καὶ πλειόνων ἐστίν, διὰ τί τοῦτο συμβαίνει καὶ τί τὸ αἴτιον;	to be nor perish but persist eternally.—From these views, then, one might think that the only cause is the one described as being in the form of matter. But as they advanced in this way, the facts themselves opened the road for them and compelled them to inquire. For however true it may be that every coming-to-be and perishing is out of some one thing, or out of more than one, why does this happen, and what is the cause?[9]
	οὐ γὰρ δὴ τό γε ὑποκείμενον αὐτὸ ποιεῖ μεταβάλλειν ἑαυτό· λέγω δ' οἷον οὔτε τὸ ξύλον οὔτε ὁ χαλκὸς αἴτιος τοῦ μεταβάλλειν ἑκάτερον αὐτῶν, οὐδὲ ποιεῖ τὸ μὲν ξύλον κλίνην ὁ δὲ χαλκὸς ἀνδριάντα, ἀλλ' ἕτερόν τι τῆς μεταβολῆς αἴτιον. τὸ δὲ τοῦτο ζητεῖν ἐστὶ τὸ τὴν ἑτέραν ἀρχὴν ζητεῖν, ὡς ἂν ἡμεῖς φαίημεν, ὅθεν ἡ ἀρχὴ τῆς κινήσεως.	Certainly the underlying subject does not itself make itself change. I mean, for instance, that neither the wood nor the bronze is the cause of its own change; the wood does not make a bed, nor the bronze a statue, but something else is the cause of the change. And to seek this is to seek the second principle—as we would put it, the source from which motion begins.
	οἱ μὲν οὖν πάμπαν ἐξ ἀρχῆς ἁψάμενοι τῆς μεθόδου τῆς τοιαύτης καὶ ἓν φάσκοντες εἶναι τὸ ὑποκείμενον οὐθὲν ἐδυσχέραναν ἑαυτοῖς, ἀλλ' ἔνιοί γε τῶν ἓν λεγόντων, ὥσπερ ἡττηθέντες ὑπὸ ταύτης τῆς ζητήσεως, τὸ ἓν ἀκίνητόν φασιν εἶναι καὶ τὴν φύσιν ὅλην οὐ μόνον κατὰ γένεσιν καὶ φθοράν (τοῦτο μὲν γὰρ ἀρχαῖόν τε καὶ πάντες ὡμολόγησαν) ἀλλὰ καὶ κατὰ τὴν ἄλλην μεταβολὴν πᾶσαν· καὶ τοῦτο αὐτῶν ἴδιόν ἐστιν.	Now those who took up this sort of inquiry at the very beginning, and said that the underlying subject is one, were not troubled by this at all. But some of those who say it is one, as though defeated by this inquiry, say that the one, and nature as a whole, is motionless—not only with respect to coming-to-be and perishing (that is an ancient belief, and all agreed on it) but also with respect to every other kind of change. And this view is peculiar to them.
984b	τῶν μὲν οὖν ἓν φασκόντων εἶναι τὸ πᾶν οὐθενὶ συνέβη τὴν τοιαύτην συνιδεῖν αἰτίαν πλὴν εἰ ἄρα Παρμενίδῃ, καὶ τούτῳ κατὰ τοσοῦτον ὅσον οὐ μόνον ἓν ἀλλὰ καὶ δύο πως τίθησιν αἰτίας εἶναι· τοῖς δὲ δὴ πλείω ποιοῦσι μᾶλλον ἐνδέχεται λέγειν, οἷον τοῖς θερμὸν καὶ ψυχρὸν ἢ πῦρ καὶ γῆν· χρῶνται γὰρ ὡς κινητικὴν ἔχοντι τῷ πυρὶ τὴν φύσιν, ὕδατι δὲ καὶ γῇ καὶ τοῖς τοιούτοις τοὐναντίον.—μετὰ δὲ τούτους καὶ τὰς τοιαύτας ἀρχάς, ὡς οὐχ ἱκανῶν οὐσῶν γεννῆσαι τὴν τῶν ὄντων φύσιν, πάλιν ὑπ' αὐτῆς τῆς ἀληθείας, ὥσπερ εἴπομεν, ἀναγκαζόμενοι τὴν ἐχομένην ἐζήτησαν ἀρχήν.	Of those who say that the universe is one, then, none managed to catch sight of this kind of cause, except perhaps Parmenides—and he only in so far as he posits not only one but also, in a way, two causes. But those who make more than one are better able to speak of it—for instance, those who make them hot and cold, or fire and earth; for they treat fire as having a nature that moves things, and water and earth and the like as the opposite.—After these thinkers and principles of this sort, since these were not adequate to generate the nature of things, people were again compelled, as we said, by the truth itself to seek the next principle.
	τοῦ γὰρ εὖ καὶ καλῶς τὰ μὲν ἔχειν τὰ δὲ γίγνεσθαι τῶν ὄντων ἴσως οὔτε πῦρ οὔτε γῆν οὔτ' ἄλλο τῶν τοιούτων οὐθὲν οὔτ' εἰκὸς αἴτιον εἶναι οὔτ' ἐκείνους οἰηθῆναι· οὐδ' αὖ τῷ αὐτομάτῳ καὶ τύχῃ τοσοῦτον ἐπιτρέψαι πρᾶγμα καλῶς εἶχεν. νοῦν δή τις εἰπὼν ἐνεῖναι, καθάπερ ἐν τοῖς ζῴοις, καὶ ἐν τῇ φύσει τὸν αἴτιον τοῦ κόσμου καὶ τῆς	For that some things are, and others come to be, in a good and beautiful way—of this it is not likely that fire or earth or anything else of the kind is the cause, nor likely that those thinkers supposed so. Nor, again, would it be right to entrust so great a matter to spontaneity and chance. So when

9 Things "made of like parts" (homoeomerous) are stuffs such as flesh, bone or gold, every part of which is the same as the whole.

GREEK	ENGLISH
τάξεως πάσης οἷον νήφων ἐφάνη παρ' εἰκῇ λέγοντας τοὺς πρότερον. φανερῶς μὲν οὖν Ἀναξαγόραν ἴσμεν ἁψάμενον τούτων τῶν λόγων, αἰτίαν δ' ἔχει πρότερον Ἑρμότιμος ὁ Κλαζομένιος εἰπεῖν. οἱ μὲν οὖν οὕτως ὑπολαμβάνοντες ἅμα τοῦ καλῶς τὴν αἰτίαν ἀρχὴν εἶναι τῶν ὄντων ἔθεσαν, καὶ τὴν τοιαύτην ὅθεν ἡ κίνησις ὑπάρχει τοῖς οὖσιν·	someone said that intellect was present—in nature, just as in animals—as the cause of the world-order and of all arrangement, he seemed like a sober man compared with his predecessors, who spoke at random. We know that Anaxagoras clearly took up these ideas, but Hermotimus of Clazomenae is credited with stating them earlier. Those who held this view, then, posited the cause of things' being beautiful as at the same time a principle of the things that are, and the kind of principle from which motion comes to them.

LOVE, STRIFE AND THE ATOMISTS

Hesiod, Empedocles, Anaxagoras and the atomists grope toward a cause of motion and of good.

GREEK	ENGLISH
ὑποπτεύσειε δ' ἄν τις Ἡσίοδον πρῶτον ζητῆσαι τὸ τοιοῦτον, κἂν εἴ τις ἄλλος ἔρωτα ἢ ἐπιθυμίαν ἐν τοῖς οὖσιν ἔθηκεν ὡς ἀρχήν, οἷον καὶ Παρμενίδης· καὶ γὰρ οὗτος κατασκευάζων τὴν τοῦ παντὸς γένεσιν πρώτιστον μέν (φησιν) ἔρωτα θεῶν μητίσατο πάντων, Ἡσίοδος δὲ πάντων μὲν πρώτιστα χάος γένετ', αὐτὰρ ἔπειτα γαῖ' εὐρύστερνος… ἠδ' ἔρος, ὃς πάντεσσι μεταπρέπει ἀθανάτοισιν, ὡς δέον ἐν τοῖς οὖσιν ὑπάρχειν τιν' αἰτίαν ἥτις κινήσει καὶ συνάξει τὰ πράγματα.	One might suspect that Hesiod was the first to look for such a thing, or anyone else who made Eros or desire a principle among the things that are, as Parmenides also did. For he, constructing the coming-to-be of the universe, says: "First of all the gods she devised Eros." And Hesiod: "First of all things Chaos came to be, and then broad-breasted Earth… and Eros, who stands out among all the immortals"—implying that among the things that are there must be some cause that will move things and bring them together.[10]
τούτους μὲν οὖν πῶς χρὴ διανεῖμαι περὶ τοῦ τίς πρῶτος, ἐξέστω κρίνειν ὕστερον· ἐπεὶ δὲ καὶ τἀναντία τοῖς ἀγαθοῖς ἐνόντα ἐφαίνετο ἐν τῇ φύσει, καὶ οὐ μόνον τάξις καὶ τὸ καλὸν ἀλλὰ καὶ ἀταξία καὶ τὸ αἰσχρόν, 985a καὶ πλείω τὰ κακὰ τῶν ἀγαθῶν καὶ τὰ φαῦλα τῶν καλῶν, οὕτως ἄλλος τις φιλίαν εἰσήνεγκε καὶ νεῖκος, ἑκάτερον ἑκατέρων αἴτιον τούτων.	How these thinkers should be ranked as to who came first may be decided later. But since the contraries of good things were also evidently present in nature—not only order and the beautiful but also disorder and the ugly, 985a and bad things more numerous than good, and base things than beautiful—so someone else introduced Love and Strife, each as the cause of one of these two sets of things.
985a εἰ γάρ τις ἀκολουθοίη καὶ λαμβάνοι πρὸς τὴν διάνοιαν καὶ μὴ πρὸς ἃ ψελλίζεται λέγων Ἐμπεδοκλῆς, εὑρήσει τὴν μὲν φιλίαν αἰτίαν οὖσαν τῶν ἀγαθῶν τὸ δὲ νεῖκος τῶν κακῶν· ὥστ' εἴ τις φαίη τρόπον τινὰ καὶ λέγειν καὶ πρῶτον λέγειν τὸ κακὸν καὶ τὸ ἀγαθὸν ἀρχὰς Ἐμπεδοκλέα, τάχ' ἂν λέγοι καλῶς, εἴπερ τὸ τῶν ἀγαθῶν ἁπάντων αἴτιον αὐτὸ τἀγαθόν ἐστι [καὶ τῶν κακῶν τὸ κακόν].—οὗτοι μὲν οὖν, ὥσπερ λέγομεν, καὶ μέχρι τούτου δυοῖν αἰτίαιν ὧν ἡμεῖς διωρίσαμεν ἐν τοῖς περὶ φύσεως ἡμμένοι φαίνονται, τῆς τε ὕλης καὶ τοῦ ὅθεν ἡ κίνησις,	For if one follows Empedocles and takes him according to his meaning rather than his lisping expression, one will find that Love is the cause of good things and Strife of bad. So if someone said that Empedocles in a sense states, and is the first to state, the bad and the good as principles, he would perhaps be right—if indeed the cause of all good things is the good itself.—These thinkers, then, as we say, evidently grasped, up to this point, two of the causes we distinguished in our

10 Hesiod: the early epic poet whose *Theogony* recounts the origins of the gods and the world.

GREEK	ENGLISH
ἀμυδρῶς μέντοι καὶ οὐθὲν σαφῶς ἀλλ' οἷον ἐν ταῖς μάχαις οἱ ἀγύμναστοι ποιοῦσιν· καὶ γὰρ ἐκεῖνοι περιφερόμενοι τύπτουσι πολλάκις καλὰς πληγάς, ἀλλ' οὔτε ἐκεῖνοι ἀπὸ ἐπιστήμης οὔτε οὗτοι ἐοίκασιν εἰδέναι ὅ τι λέγουσιν· σχεδὸν γὰρ οὐθὲν χρώμενοι φαίνονται τούτοις ἀλλ' ἢ κατὰ μικρόν.	works on nature, the matter and the source of motion—but dimly and without any clarity, rather as untrained fighters do in battle. They rush about and often land good blows, but not from knowledge; and likewise these thinkers do not seem to know what they are saying. For they evidently make almost no use of these causes, except to a small extent.[11]
Ἀναξαγόρας τε γὰρ μηχανῇ χρῆται τῷ νῷ πρὸς τὴν κοσμοποιίαν, καὶ ὅταν ἀπορήσῃ διὰ τίν' αἰτίαν ἐξ ἀνάγκης ἐστί, τότε παρέλκει αὐτόν, ἐν δὲ τοῖς ἄλλοις πάντα μᾶλλον αἰτιᾶται τῶν γιγνομένων ἢ νοῦν, καὶ Ἐμπεδοκλῆς ἐπὶ πλέον μὲν τούτου χρῆται τοῖς αἰτίοις, οὐ μὴν οὔθ' ἱκανῶς, οὔτ' ἐν τούτοις εὑρίσκει τὸ ὁμολογούμενον. πολλαχοῦ γοῦν αὐτῷ ἡ μὲν φιλία διακρίνει τὸ δὲ νεῖκος συγκρίνει.	Anaxagoras uses intellect as a stage device for making the world: whenever he is at a loss as to why something is necessarily so, he drags it in, but otherwise he names anything rather than intellect as the cause of what comes to be. Empedocles uses the causes more than he does, but not adequately either, nor does he achieve consistency in using them. At any rate, in many places in his account Love separates and Strife combines.[12]
ὅταν μὲν γὰρ εἰς τὰ στοιχεῖα διίστηται τὸ πᾶν ὑπὸ τοῦ νείκους, τότε τὸ πῦρ εἰς ἓν συγκρίνεται καὶ τῶν ἄλλων στοιχείων ἕκαστον· ὅταν δὲ πάλιν ὑπὸ τῆς φιλίας συνίωσιν εἰς τὸ ἕν, ἀναγκαῖον ἐξ ἑκάστου τὰ μόρια διακρίνεσθαι πάλιν.—Ἐμπεδοκλῆς μὲν οὖν παρὰ τοὺς πρότερον πρῶτος τὸ τὴν αἰτίαν διελεῖν εἰσήνεγκεν, οὐ μίαν ποιήσας τὴν τῆς κινήσεως ἀρχὴν ἀλλ' ἑτέρας τε καὶ ἐναντίας, ἔτι δὲ τὰ ὡς ἐν ὕλης εἴδει λεγόμενα στοιχεῖα τέτταρα πρῶτος εἶπεν (οὐ μὴν χρῆταί γε τέτταρσιν ἀλλ' ὡς δυσὶν οὖσι μόνοις, [985b] πυρὶ μὲν καθ' αὑτὸ τοῖς δ' ἀντικειμένοις ὡς μιᾷ φύσει, γῇ τε καὶ ἀέρι καὶ ὕδατι·	For whenever the universe is dissolved into its elements by Strife, fire is combined into one, and so is each of the other elements; and whenever they come together again into one under Love, the parts must be separated out again from each element.—Empedocles, then, was the first, in contrast to his predecessors, to introduce the division of this cause, making the source of motion not one but two different and contrary sources. Further, he was the first to speak of the four elements described as being in the form of matter. (He does not, however, use them as four but as if they were only two, [985b] fire by itself on the one side, and on the other its opposites—earth, air and water—as a single nature;
985b λάβοι δ' ἄν τις αὐτὸ θεωρῶν ἐκ τῶν ἐπῶν)·—οὗτος μὲν οὖν, ὥσπερ λέγομεν, οὕτω τε καὶ τοσαύτας εἴρηκε τὰς ἀρχάς· Λεύκιππος δὲ καὶ ὁ ἑταῖρος αὐτοῦ Δημόκριτος στοιχεῖα μὲν τὸ πλῆρες καὶ τὸ κενὸν εἶναί φασι, λέγοντες τὸ μὲν ὂν τὸ δὲ μὴ ὄν, τούτων δὲ τὸ μὲν πλῆρες καὶ στερεὸν τὸ ὄν, τὸ δὲ κενὸν τὸ μὴ ὄν (διὸ καὶ οὐθὲν μᾶλλον τὸ ὂν τοῦ μὴ ὄντος εἶναί φασιν, ὅτι οὐδὲ τοῦ κενοῦ τὸ σῶμα), αἴτια δὲ τῶν ὄντων ταῦτα ὡς ὕλην.	one can see this by studying his verses.)—He, then, as we say, has spoken of the principles in this way and as being this many. Leucippus and his associate Democritus say that the elements are the full and the void, calling the one being and the other non-being: the full and solid is being, and the void is non-being (which is why they also say that being no more is than non-being, since body no more is than the void). And they say these are the causes of the things that are, as matter.[13]
καὶ καθάπερ οἱ ἓν ποιοῦντες τὴν ὑποκειμένην οὐσίαν τἆλλα τοῖς πάθεσιν αὐτῆς γεννῶσι, τὸ μανὸν καὶ τὸ	And just as those who make the underlying substance one generate the other things through its

11 Empedocles of Acragas (fifth century BC) held that four elements—earth, water, air, fire—are combined and separated by two forces, Love and Strife.
12 A "stage device": the crane on which a god was lowered onto the stage to resolve a play's plot.
13 Leucippus and Democritus of Abdera (fifth century BC) were the founders of atomism.

GREEK

πυκνὸν ἀρχὰς τιθέμενοι τῶν παθημάτων, τὸν αὐτὸν τρόπον καὶ οὗτοι τὰς διαφορὰς αἰτίας τῶν ἄλλων εἶναί φασιν. ταύτας μέντοι τρεῖς εἶναι λέγουσι, σχῆμά τε καὶ τάξιν καὶ θέσιν· διαφέρειν γάρ φασι τὸ ὂν ῥυσμῷ καὶ διαθιγῇ καὶ τροπῇ μόνον· τούτων δὲ ὁ μὲν ῥυσμὸς σχῆμά ἐστιν ἡ δὲ διαθιγὴ τάξις ἡ δὲ τροπὴ θέσις· διαφέρει γὰρ τὸ μὲν Α τοῦ Ν σχήματι τὸ δὲ ΑΝ τοῦ ΝΑ τάξει τὸ δὲ Ζ τοῦ Η θέσει. περὶ δὲ κινήσεως, ὅθεν ἢ πῶς ὑπάρξει τοῖς οὖσι, καὶ οὗτοι παραπλησίως τοῖς ἄλλοις ῥᾳθύμως ἀφεῖσαν. περὶ μὲν οὖν τῶν δύο αἰτιῶν, ὥσπερ λέγομεν, ἐπὶ τοσοῦτον ἔοικεν ἐζητῆσθαι παρὰ τῶν πρότερον.

ENGLISH

attributes, positing the rare and the dense as the principles of the attributes, in the same way these thinkers say that the differences are the causes of the other things. These differences, they say, are three: shape, order and position. For they say that what is differs only by "rhythm," "contact" and "turning"; and of these, rhythm is shape, contact is order, and turning is position. A differs from N in shape, AN from NA in order, and Z from H in position. As for motion—where it comes from, or how it belongs to things—these thinkers too, like the others, lazily neglected it. So far, then, as we say, the inquiry into these two causes seems to have been carried by our predecessors.[14]

THE PYTHAGOREANS AND THE ELEATICS

The Pythagoreans make numbers the principles of things; the Eleatics say that all is one.

GREEK

ἐν δὲ τούτοις καὶ πρὸ τούτων οἱ καλούμενοι Πυθαγόρειοι τῶν μαθημάτων ἁψάμενοι πρῶτοι ταῦτά τε προήγαγον, καὶ ἐντραφέντες ἐν αὐτοῖς τὰς τούτων ἀρχὰς τῶν ὄντων ἀρχὰς ᾠήθησαν εἶναι πάντων. ἐπεὶ δὲ τούτων οἱ ἀριθμοὶ φύσει πρῶτοι, ἐν δὲ τούτοις ἐδόκουν θεωρεῖν ὁμοιώματα πολλὰ τοῖς οὖσι καὶ γιγνομένοις, μᾶλλον ἢ ἐν πυρὶ καὶ γῇ καὶ ὕδατι, ὅτι τὸ μὲν τοιονδὶ τῶν ἀριθμῶν πάθος δικαιοσύνη τὸ δὲ τοιονδὶ ψυχή τε καὶ νοῦς ἕτερον δὲ καιρὸς καὶ τῶν ἄλλων ὡς εἰπεῖν ἕκαστον ὁμοίως, ἔτι δὲ τῶν ἁρμονιῶν ἐν ἀριθμοῖς ὁρῶντες τὰ πάθη καὶ τοὺς λόγους,—ἐπεὶ δὴ τὰ μὲν ἄλλα τοῖς ἀριθμοῖς ἐφαίνοντο τὴν φύσιν ἀφωμοιῶσθαι πᾶσαν, οἱ δ' ἀριθμοὶ πάσης τῆς φύσεως πρῶτοι, [986a] τὰ τῶν ἀριθμῶν στοιχεῖα τῶν ὄντων στοιχεῖα πάντων ὑπέλαβον εἶναι, καὶ τὸν ὅλον οὐρανὸν ἁρμονίαν εἶναι καὶ ἀριθμόν· καὶ ὅσα εἶχον ὁμολογούμενα ἔν τε τοῖς ἀριθμοῖς καὶ ταῖς ἁρμονίαις πρὸς τὰ τοῦ οὐρανοῦ πάθη καὶ μέρη καὶ πρὸς τὴν ὅλην διακόσμησιν, ταῦτα συνάγοντες ἐφήρμοττον.

ENGLISH

Contemporary with these thinkers, and before them, the so-called Pythagoreans took up mathematics and were the first to advance it; and having been brought up in it, they thought its principles were the principles of all things. Since among these principles numbers are by nature first, and in numbers they seemed to see many resemblances to the things that are and that come to be—more than in fire and earth and water—one attribute of numbers being justice, another soul and intellect, another the right moment, and similarly, one might say, with each of the rest; and since, further, they saw the attributes and ratios of musical scales in numbers—since, then, all other things seemed to be modeled in their whole nature on numbers, and numbers seemed to be first in the whole of nature, [986a] they supposed the elements of numbers to be the elements of all the things that are, and the whole heaven to be a harmony and a number. And whatever agreements they could show between numbers and harmonies on the one hand and the attributes and parts of the heaven and its whole arrangement on the other, they collected and fitted into their scheme.[15]

986a

GREEK

κἂν εἴ τί που διέλειπε, προσεγλίχοντο τοῦ συνειρομένην πᾶσαν αὐτοῖς εἶναι τὴν πραγματείαν· λέγω δ' οἷον, ἐπειδὴ τέλειον ἡ δεκὰς εἶναι δοκεῖ καὶ πᾶσαν περιειληφέναι τὴν

ENGLISH

And if there was a gap anywhere, they eagerly supplied what was needed to make their whole system hang together. For instance, since the ten is

14 "Rhythm," "contact" and "turning" are the atomists' own dialect terms, which Aristotle translates into ordinary words.
15 The Pythagoreans: followers of Pythagoras of Samos (sixth century BC), who settled at Croton in southern Italy.

GREEK

τῶν ἀριθμῶν φύσιν, καὶ τὰ φερόμενα κατὰ τὸν οὐρανὸν δέκα μὲν εἶναί φασιν, ὄντων δὲ ἐννέα μόνον τῶν φανερῶν διὰ τοῦτο δεκάτην τὴν ἀντίχθονα ποιοῦσιν. διώρισται δὲ περὶ τούτων ἐν ἑτέροις ἡμῖν ἀκριβέστερον. ἀλλ' οὗ δὴ χάριν ἐπερχόμεθα, τοῦτό ἐστιν ὅπως λάβωμεν καὶ παρὰ τούτων τίνας εἶναι τιθέασι τὰς ἀρχὰς καὶ πῶς εἰς τὰς εἰρημένας ἐμπίπτουσιν αἰτίας.

φαίνονται δὴ καὶ οὗτοι τὸν ἀριθμὸν νομίζοντες ἀρχὴν εἶναι καὶ ὡς ὕλην τοῖς οὖσι καὶ ὡς πάθη τε καὶ ἕξεις, τοῦ δὲ ἀριθμοῦ στοιχεῖα τό τε ἄρτιον καὶ τὸ περιττόν, τούτων δὲ τὸ μὲν πεπερασμένον τὸ δὲ ἄπειρον, τὸ δ' ἓν ἐξ ἀμφοτέρων εἶναι τούτων (καὶ γὰρ ἄρτιον εἶναι καὶ περιττόν), τὸν δ' ἀριθμὸν ἐκ τοῦ ἑνός, ἀριθμοὺς δέ, καθάπερ εἴρηται, τὸν ὅλον οὐρανόν.—ἕτεροι δὲ τῶν αὐτῶν τούτων τὰς ἀρχὰς δέκα λέγουσιν εἶναι τὰς κατὰ συστοιχίαν λεγομένας, πέρας [καὶ] ἄπειρον, περιττὸν [καὶ] ἄρτιον, ἓν [καὶ] πλῆθος, δεξιὸν [καὶ] ἀριστερόν, ἄρρεν [καὶ] θῆλυ, ἠρεμοῦν [καὶ] κινούμενον, εὐθὺ [καὶ] καμπύλον, φῶς [καὶ] σκότος, ἀγαθὸν [καὶ] κακόν, τετράγωνον [καὶ] ἑτερόμηκες·

ὅνπερ τρόπον ἔοικε καὶ Ἀλκμαίων ὁ Κροτωνιάτης ὑπολαβεῖν, καὶ ἤτοι οὗτος παρ' ἐκείνων ἢ ἐκεῖνοι παρὰ τούτου παρέλαβον τὸν λόγον τοῦτον· καὶ γὰρ [ἐγένετο τὴν ἡλικίαν] Ἀλκμαίων [ἐπὶ γέροντι Πυθαγόρᾳ,] ἀπεφήνατο [δὲ] παραπλησίως τούτοις· φησὶ γὰρ εἶναι δύο τὰ πολλὰ τῶν ἀνθρωπίνων, λέγων τὰς ἐναντιότητας οὐχ ὥσπερ οὗτοι διωρισμένας ἀλλὰ τὰς τυχούσας, οἷον λευκὸν μέλαν, γλυκὺ πικρόν, ἀγαθὸν κακόν, μέγα μικρόν.

οὗτος μὲν οὖν ἀδιορίστως ἀπέρριψε περὶ τῶν λοιπῶν, [986b] οἱ δὲ Πυθαγόρειοι καὶ πόσαι καὶ τίνες αἱ ἐναντιώσεις ἀπεφήναντο. παρὰ μὲν οὖν τούτων ἀμφοῖν τοσοῦτον ἔστι λαβεῖν, ὅτι τἀναντία ἀρχαὶ τῶν ὄντων· τὸ δ' ὅσαι παρὰ τῶν ἑτέρων, καὶ τίνες αὗταί εἰσιν. πῶς μέντοι πρὸς τὰς εἰρημένας αἰτίας ἐνδέχεται συνάγειν, σαφῶς μὲν οὐ διήρθρωται παρ' ἐκείνων, ἐοίκασι δ' ὡς ἐν ὕλης εἴδει τὰ στοιχεῖα τάττειν· ἐκ τούτων γὰρ ὡς ἐνυπαρχόντων συνεστάναι καὶ πεπλάσθαι φασὶ τὴν οὐσίαν.—τῶν μὲν οὖν παλαιῶν καὶ πλείω λεγόντων τὰ στοιχεῖα τῆς φύσεως ἐκ τούτων ἱκανόν ἐστι θεωρῆσαι τὴν διάνοιαν· εἰσὶ δέ τινες οἳ περὶ τοῦ παντὸς ὡς μιᾶς οὔσης φύσεως ἀπεφήναντο, τρόπον δὲ οὐ τὸν αὐτὸν πάντες οὔτε τοῦ καλῶς οὔτε τοῦ κατὰ τὴν φύσιν.

ENGLISH

thought to be complete and to embrace the whole nature of numbers, they say that the bodies that move in the heavens are also ten; but since only nine are visible, they invent the "counter-earth" as the tenth. We have discussed these matters more precisely elsewhere. But the reason we are going over them is to learn from these thinkers too what principles they posit, and how these fall under the causes we have named.[16]

These thinkers too, then, evidently consider number to be a principle, both as matter for the things that are and as their attributes and states. The elements of number are the even and the odd, one of these limited and the other unlimited; the one is from both of these (for it is both even and odd); number comes from the one; and, as has been said, the whole heaven is numbers.—Others of this same school say there are ten principles, arranged in two columns: limit and unlimited, odd and even, one and plurality, right and left, male and female, resting and moving, straight and curved, light and darkness, good and bad, square and oblong.

Alcmaeon of Croton seems to have taken the same view in this way, and either he took this doctrine from them or they from him; for Alcmaeon expressed himself much as they did. He says that most human things come in pairs, meaning not definitely fixed contrarieties, as theirs were, but any at random—white and black, sweet and bitter, good and bad, large and small.[17]

He, then, threw out vague remarks about the rest, [986b] while the Pythagoreans declared both how many and which the contrarieties are. From both of these, then, we can take this much: that contraries are the principles of the things that are; and from the latter, how many they are and which. But how these can be brought under the causes we have named has not been clearly articulated by them; they seem, though, to rank their elements as in the form of matter, for they say that substance is composed and molded out of them as its constituents.—From these, then, we can sufficiently see the thinking of the ancients who said the elements of nature are more than one. But

16 The counter-earth: an invisible body the Pythagoreans placed opposite the earth; Aristotle discusses it in *On the Heavens*.
17 Alcmaeon of Croton: a physician and natural philosopher of the early fifth century BC.

GREEK	ENGLISH
	there are some who spoke of the universe as being a single nature, though not all in the same way, either in the quality of their account or in its conformity with nature.
986b εἰς μὲν οὖν τὴν νῦν σκέψιν τῶν αἰτίων οὐδαμῶς συναρμόττει περὶ αὐτῶν ὁ λόγος (οὐ γὰρ ὥσπερ ἔνιοι τῶν φυσιολόγων ἓν ὑποθέμενοι τὸ ὂν ὅμως γεννῶσιν ὡς ἐξ ὕλης τοῦ ἑνός, ἀλλ' ἕτερον τρόπον οὗτοι λέγουσιν· ἐκεῖνοι μὲν γὰρ προστιθέασι κίνησιν, γεννῶντές γε τὸ πᾶν, οὗτοι δὲ ἀκίνητον εἶναί φασιν)· οὐ μὴν ἀλλὰ τοσοῦτόν γε οἰκεῖόν ἐστι τῇ νῦν σκέψει. Παρμενίδης μὲν γὰρ ἔοικε τοῦ κατὰ τὸν λόγον ἑνὸς ἅπτεσθαι, Μέλισσος δὲ τοῦ κατὰ τὴν ὕλην (διὸ καὶ ὁ μὲν πεπερασμένον ὁ δ' ἄπειρόν φησιν εἶναι αὐτό)· Ξενοφάνης δὲ πρῶτος τούτων ἑνίσας (ὁ γὰρ Παρμενίδης τούτου λέγεται γενέσθαι μαθητής) οὐθὲν διεσαφήνισεν, οὐδὲ τῆς φύσεως τούτων οὐδετέρας ἔοικε θιγεῖν, ἀλλ' εἰς τὸν ὅλον οὐρανὸν ἀποβλέψας τὸ ἓν εἶναί φησι τὸν θεόν.	A discussion of them does not fit at all into the present inquiry into causes. (For they do not, like some of the natural philosophers who suppose that being is one, nevertheless generate things from the one as from matter; they speak in another way. Those others add motion, since they do generate the universe, whereas these say it is motionless.) Still, this much is relevant to the present inquiry. Parmenides seems to fasten on what is one in account, Melissus on what is one in matter (which is why the former says it is limited, the latter unlimited). Xenophanes, the first of them to make things one (Parmenides is said to have been his pupil), made nothing clear, and does not seem to have grasped the nature of either of these; rather, gazing at the whole heaven, he says that the one is the god.[18]
οὗτοι μὲν οὖν, καθάπερ εἴπομεν, ἀφετέοι πρὸς τὴν νῦν ζήτησιν, οἱ μὲν δύο καὶ πάμπαν ὡς ὄντες μικρὸν ἀγροικότεροι, Ξενοφάνης καὶ Μέλισσος· Παρμενίδης δὲ μᾶλλον βλέπων ἔοικέ που λέγειν· παρὰ γὰρ τὸ ὂν τὸ μὴ ὂν οὐθὲν ἀξιῶν εἶναι, ἐξ ἀνάγκης ἓν οἴεται εἶναι, τὸ ὄν, καὶ ἄλλο οὐθέν (περὶ οὗ σαφέστερον ἐν τοῖς περὶ φύσεως εἰρήκαμεν), ἀναγκαζόμενος δ' ἀκολουθεῖν τοῖς φαινομένοις, καὶ τὸ ἓν μὲν κατὰ τὸν λόγον πλείω δὲ κατὰ τὴν αἴσθησιν ὑπολαμβάνων εἶναι, δύο τὰς αἰτίας καὶ δύο τὰς ἀρχὰς πάλιν τίθησι, θερμὸν καὶ ψυχρόν, οἷον πῦρ καὶ γῆν λέγων·	These thinkers, then, as we said, must be set aside for the purposes of the present inquiry—two of them entirely, Xenophanes and Melissus, as being a little too crude. Parmenides, though, seems to speak with more insight. For, holding that besides what is, what is not is nothing, he thinks that of necessity what is is one, and there is nothing else (we have spoken about this more clearly in our works on nature). But being compelled to follow the appearances, and supposing that what is is one according to the account but many according to perception, he posits in turn two causes and two principles, hot and cold, calling them fire and earth, as it were;
987a τούτων δὲ κατὰ μὲν τὸ ὂν τὸ θερμὸν τάττει θάτερον δὲ κατὰ τὸ μὴ ὄν.—ἐκ μὲν οὖν τῶν εἰρημένων καὶ παρὰ τῶν συνηδρευκότων ἤδη τῷ λόγῳ σοφῶν ταῦτα παρειλήφαμεν, παρὰ μὲν τῶν πρώτων σωματικήν τε τὴν ἀρχήν (ὕδωρ γὰρ καὶ πῦρ καὶ τὰ τοιαῦτα σώματά ἐστιν), καὶ τῶν μὲν μίαν τῶν δὲ πλείους τὰς ἀρχὰς τὰς σωματικάς, ἀμφοτέρων μέντοι ταύτας ὡς ἐν ὕλης εἴδει τιθέντων, παρὰ δέ τινων ταύτην τε τὴν αἰτίαν τιθέντων καὶ πρὸς ταύτῃ τὴν ὅθεν ἡ κίνησις, καὶ ταύτην παρὰ τῶν μὲν μίαν παρὰ τῶν δὲ δύο.	and of these he ranks the hot with what is, and the other with what is not.—From what has been said, then, and from the wise men who have so far sat in council with us on the question, we have gathered this. From the first thinkers, that the principle is bodily (for water and fire and the like are bodies), with some making the bodily principles one and others more than one, though both place them in the form of matter; and from some, that there is this cause and, in addition to it, the source of motion—which some of them make one and others two.

18 Xenophanes of Colophon, Parmenides of Elea and Melissus of Samos held, in different ways, that what is is one.

GREEK

μέχρι μὲν οὖν τῶν Ἰταλικῶν καὶ χωρὶς ἐκείνων μορυχώτερον εἰρήκασιν οἱ ἄλλοι περὶ αὐτῶν, πλὴν ὥσπερ εἴπομεν δυοῖν τε αἰτίαιν τυγχάνουσι κεχρημένοι, καὶ τούτων τὴν ἑτέραν οἱ μὲν μίαν οἱ δὲ δύο ποιοῦσι, τὴν ὅθεν ἡ κίνησις· οἱ δὲ Πυθαγόρειοι δύο μὲν τὰς ἀρχὰς κατὰ τὸν αὐτὸν εἰρήκασι τρόπον, τοσοῦτον δὲ προσεπέθεσαν ὃ καὶ ἴδιόν ἐστιν αὐτῶν, ὅτι τὸ πεπερασμένον καὶ τὸ ἄπειρον [καὶ τὸ ἓν] οὐχ ἑτέρας τινὰς ᾠήθησαν εἶναι φύσεις, οἷον πῦρ ἢ γῆν ἤ τι τοιοῦτον ἕτερον, ἀλλ' αὐτὸ τὸ ἄπειρον καὶ αὐτὸ τὸ ἓν οὐσίαν εἶναι τούτων ὧν κατηγοροῦνται, διὸ καὶ ἀριθμὸν εἶναι τὴν οὐσίαν πάντων. περί τε τούτων οὖν τοῦτον ἀπεφήναντο τὸν τρόπον, καὶ περὶ τοῦ τί ἐστιν ἤρξαντο μὲν λέγειν καὶ ὁρίζεσθαι, λίαν δ' ἁπλῶς ἐπραγματεύθησαν.

ὡρίζοντό τε γὰρ ἐπιπολαίως, καὶ ᾧ πρώτῳ ὑπάρξειεν ὁ λεχθεὶς ὅρος, τοῦτ' εἶναι τὴν οὐσίαν τοῦ πράγματος ἐνόμιζον, ὥσπερ εἴ τις οἴοιτο ταὐτὸν εἶναι διπλάσιον καὶ τὴν δυάδα διότι πρῶτον ὑπάρχει τοῖς δυσὶ τὸ διπλάσιον. ἀλλ' οὐ ταὐτὸν ἴσως ἐστὶ τὸ εἶναι διπλασίῳ καὶ δυάδι· εἰ δὲ μή, πολλὰ τὸ ἓν ἔσται, ὃ κἀκείνοις συνέβαινεν. παρὰ μὲν οὖν τῶν πρότερον καὶ τῶν ἄλλων τοσαῦτα ἔστι λαβεῖν.

ENGLISH

Down to the Italians, then, and apart from them, the others have spoken rather obscurely about these matters, except that, as we said, they happen to have used two causes, and of these one—the source of motion—some make one and others two. The Pythagoreans spoke of two principles in the same way, but added this much, which is peculiar to them: they did not think that the limited and the unlimited were some other natures, such as fire or earth or something else of the kind, but that the unlimited itself and the one itself were the substance of the things of which they are predicated; and that is why number is the substance of all things. On these matters, then, this is how they expressed themselves; and about the what-it-is they began to make statements and to define, but they treated it too simply.[19]

For they defined superficially, and thought that the first thing to which a given definition belonged was the substance of the thing—as if someone thought that double and the number two were the same, because double belongs first to two. But what it is to be double and what it is to be two are presumably not the same; otherwise the one will be many—a consequence they in fact had to face. This, then, is as much as we can learn from the earlier thinkers and the others.

PLATO AND THE FORMS

Plato, following Heraclitus and Socrates, posits Forms, mathematical objects, the One and the great and small.

GREEK

μετὰ δὲ τὰς εἰρημένας φιλοσοφίας ἡ Πλάτωνος ἐπεγένετο πραγματεία, τὰ μὲν πολλὰ τούτοις ἀκολουθοῦσα, τὰ δὲ καὶ ἴδια παρὰ τὴν τῶν Ἰταλικῶν ἔχουσα φιλοσοφίαν. ἐκ νέου τε γὰρ συνήθης γενόμενος πρῶτον Κρατύλῳ καὶ ταῖς Ἡρακλειτείοις δόξαις, ὡς ἁπάντων τῶν αἰσθητῶν ἀεὶ ῥεόντων καὶ ἐπιστήμης περὶ αὐτῶν οὐκ οὔσης, ταῦτα μὲν καὶ ὕστερον οὕτως ὑπέλαβεν· [987b] Σωκράτους δὲ περὶ μὲν τὰ ἠθικὰ πραγματευομένου περὶ δὲ τῆς ὅλης φύσεως οὐθέν, ἐν μέντοι τούτοις τὸ καθόλου ζητοῦντος καὶ περὶ ὁρισμῶν ἐπιστήσαντος πρώτου τὴν διάνοιαν, ἐκεῖνον ἀποδεξάμενος διὰ τὸ τοιοῦτον ὑπέλαβεν ὡς περὶ ἑτέρων τοῦτο γιγνόμενον καὶ οὐ τῶν αἰσθητῶν· ἀδύνατον γὰρ εἶναι τὸν κοινὸν ὅρον τῶν αἰσθητῶν τινός, ἀεί γε μεταβαλλόντων.

ENGLISH

After the philosophies we have described came the work of Plato, which in most respects followed these thinkers, but also had features of its own, apart from the philosophy of the Italians. From his youth he had first become familiar with Cratylus and with the Heraclitean opinions that all perceptible things are always flowing and that there is no knowledge of them; and he held these views later as well. [987b] Socrates, however, was occupied with ethical matters and not at all with nature as a whole, but in ethics he sought the universal and was the first to fix his thought on definitions. Plato accepted him, and because of this he supposed that defining concerned other things and not perceptible ones; for it was impossible, he thought,

19 "The Italians": the philosophers of southern Italy, chiefly the Pythagoreans.

GREEK

ENGLISH

for the common definition to be of any perceptible thing, since these are always changing.[20]

987b οὗτος οὖν τὰ μὲν τοιαῦτα τῶν ὄντων ἰδέας προσηγόρευσε, τὰ δ' αἰσθητὰ παρὰ ταῦτα καὶ κατὰ ταῦτα λέγεσθαι πάντα· κατὰ μέθεξιν γὰρ εἶναι τὰ πολλὰ ὁμώνυμα τοῖς εἴδεσιν. τὴν δὲ μέθεξιν τοὔνομα μόνον μετέβαλεν· οἱ μὲν γὰρ Πυθαγόρειοι μιμήσει τὰ ὄντα φασὶν εἶναι τῶν ἀριθμῶν, Πλάτων δὲ μεθέξει, τοὔνομα μεταβαλών. τὴν μέντοι γε μέθεξιν ἢ τὴν μίμησιν ἥτις ἂν εἴη τῶν εἰδῶν ἀφεῖσαν ἐν κοινῷ ζητεῖν. ἔτι δὲ παρὰ τὰ αἰσθητὰ καὶ τὰ εἴδη τὰ μαθηματικὰ τῶν πραγμάτων εἶναί φησι μεταξύ, διαφέροντα τῶν μὲν αἰσθητῶν τῷ ἀΐδια καὶ ἀκίνητα εἶναι, τῶν δ' εἰδῶν τῷ τὰ μὲν πόλλ' ἄττα ὅμοια εἶναι τὸ δὲ εἶδος αὐτὸ ἓν ἕκαστον μόνον. ἐπεὶ δ' αἴτια τὰ εἴδη τοῖς ἄλλοις, τἀκείνων στοιχεῖα πάντων ᾠήθη τῶν ὄντων εἶναι στοιχεῖα.

Things of this other sort, then, he called Forms, and he said that perceptible things are apart from these and are all named after them; for the many things that share a name with the Forms exist by participation in them. With "participation" he changed only the word: the Pythagoreans say that things exist by imitation of numbers, Plato by participation, changing the name. But what this participation in, or imitation of, the Forms might be, they left to be inquired into in common. Further, besides perceptible things and Forms, he says there are the objects of mathematics, which are intermediate, differing from perceptible things in being eternal and unchanging, and from Forms in that there are many alike, whereas the Form itself is in each case unique. And since the Forms are the causes of other things, he thought their elements were the elements of all the things that are.[21]

ὡς μὲν οὖν ὕλην τὸ μέγα καὶ τὸ μικρὸν εἶναι ἀρχάς, ὡς δ' οὐσίαν τὸ ἕν· ἐξ ἐκείνων γὰρ κατὰ μέθεξιν τοῦ ἑνὸς [τὰ εἴδη] εἶναι τοὺς ἀριθμούς. τὸ μέντοι γε ἓν οὐσίαν εἶναι, καὶ μὴ ἕτερόν γέ τι ὂν λέγεσθαι ἕν, παραπλησίως τοῖς Πυθαγορείοις ἔλεγε, καὶ τὸ τοὺς ἀριθμοὺς αἰτίους εἶναι τοῖς ἄλλοις τῆς οὐσίας ὡσαύτως ἐκείνοις· τὸ δὲ ἀντὶ τοῦ ἀπείρου ὡς ἑνὸς δυάδα ποιῆσαι, τὸ δ' ἄπειρον ἐκ μεγάλου καὶ μικροῦ, τοῦτ' ἴδιον· καὶ ἔτι ὁ μὲν τοὺς ἀριθμοὺς παρὰ τὰ αἰσθητά, οἱ δ' ἀριθμοὺς εἶναί φασιν αὐτὰ τὰ πράγματα, καὶ τὰ μαθηματικὰ μεταξὺ τούτων οὐ τιθέασιν.

As matter, then, the great and the small are principles; as substance, the One. For from the great and the small, by participation in the One, come the numbers. In saying that the One is substance, and not that something else is said to be one, he spoke much as the Pythagoreans did; and like them he said that the numbers are the causes of the substance of other things. But to posit a dyad in place of the unlimited taken as one, and to make the unlimited out of the great and the small —this is peculiar to him. Further, he places the numbers apart from perceptible things, while they say that the things themselves are numbers, and they do not place the objects of mathematics between the two.[22]

τὸ μὲν οὖν τὸ ἓν καὶ τοὺς ἀριθμοὺς παρὰ τὰ πράγματα ποιῆσαι, καὶ μὴ ὥσπερ οἱ Πυθαγόρειοι, καὶ ἡ τῶν εἰδῶν εἰσαγωγὴ διὰ τὴν ἐν τοῖς λόγοις ἐγένετο σκέψιν (οἱ γὰρ πρότεροι διαλεκτικῆς οὐ μετεῖχον), τὸ δὲ δυάδα ποιῆσαι τὴν ἑτέραν φύσιν διὰ τὸ τοὺς ἀριθμοὺς ἔξω τῶν πρώτων εὐφυῶς ἐξ αὐτῆς γεννᾶσθαι ὥσπερ ἔκ τινος ἐκμαγείου. 988a καίτοι συμβαίνει γ' ἐναντίως· οὐ γὰρ εὔλογον οὕτως. οἱ μὲν γὰρ ἐκ τῆς ὕλης πολλὰ ποιοῦσιν, τὸ δ' εἶδος ἅπαξ γεννᾷ μόνον, φαίνεται δ' ἐκ μιᾶς ὕλης μία τράπεζα, ὁ δὲ

His making the One and the numbers apart from things, and not as the Pythagoreans did, and his introduction of the Forms, came about because of his inquiry into definitions (for the earlier thinkers had no share in dialectic). His making the other nature a dyad was because the numbers, except the primes, could be neatly generated out of it as out of a kind of mold. 988a Yet what happens is

20 Cratylus: a follower of Heraclitus, for whom Plato's dialogue *Cratylus* is named.
21 Plato's Forms: eternal, unchanging realities such as Beauty itself or Justice itself, grasped by thought rather than the senses; perceptible things are said to "participate" in them.
22 Dyad: a "twoness" or pair; elsewhere Aristotle calls this Platonic principle the "indefinite dyad."

GREEK

τὸ εἶδος ἐπιφέρων εἷς ὢν πολλὰς ποιεῖ. ὁμοίως δ' ἔχει καὶ τὸ ἄρρεν πρὸς τὸ θῆλυ· τὸ μὲν γὰρ ὑπὸ μιᾶς πληροῦται ὀχείας, τὸ δ' ἄρρεν πολλὰ πληροῖ· καίτοι ταῦτα μιμήματα τῶν ἀρχῶν ἐκείνων ἐστίν.

988a Πλάτων μὲν οὖν περὶ τῶν ζητουμένων οὕτω διώρισεν· φανερὸν δ' ἐκ τῶν εἰρημένων ὅτι δυοῖν αἰτίαιν μόνον κέχρηται, τῇ τε τοῦ τί ἐστι καὶ τῇ κατὰ τὴν ὕλην (τὰ γὰρ εἴδη τοῦ τί ἐστιν αἴτια τοῖς ἄλλοις, τοῖς δ' εἴδεσι τὸ ἕν), καὶ τίς ἡ ὕλη ἡ ὑποκειμένη καθ' ἧς τὰ εἴδη μὲν ἐπὶ τῶν αἰσθητῶν τὸ δ' ἓν ἐν τοῖς εἴδεσι λέγεται, ὅτι αὕτη δυάς ἐστι, τὸ μέγα καὶ τὸ μικρόν, ἔτι δὲ τὴν τοῦ εὖ καὶ τοῦ κακῶς αἰτίαν τοῖς στοιχείοις ἀπέδωκεν ἑκατέροις ἑκατέραν, ὥσπερ φαμὲν καὶ τῶν προτέρων ἐπιζητῆσαί τινας φιλοσόφων, οἷον Ἐμπεδοκλέα καὶ Ἀναξαγόραν.

ENGLISH

the opposite; the theory is not reasonable. For they make many things out of the matter, while the Form generates only once; but evidently from one matter comes one table, while the one who applies the form, being one, makes many tables. The male is similarly related to the female: the female is impregnated by one mating, while the male impregnates many. And yet these are imitations of those principles.

This, then, is how Plato settled the questions we are inquiring into. It is evident from what has been said that he used only two causes, that of the what-it-is and that which accords with matter (for the Forms are the causes of the what-it-is for other things, and the One for the Forms). It is evident too what the underlying matter is, of which the Forms are predicated in the case of perceptible things, and the One in the case of the Forms: it is a dyad, the great and the small. Further, he assigned the cause of good and of bad to the elements, one to each—as we say some earlier philosophers also sought to do, such as Empedocles and Anaxagoras.

NO CAUSE BEYOND THE FOUR

The earlier thinkers touched only on the four causes, and only dimly.

GREEK

συντόμως μὲν οὖν καὶ κεφαλαιωδῶς ἐπεληλύθαμεν τίνες τε καὶ πῶς τυγχάνουσιν εἰρηκότες περί τε τῶν ἀρχῶν καὶ τῆς ἀληθείας· ὅμως δὲ τοσοῦτόν γ' ἔχομεν ἐξ αὐτῶν, ὅτι τῶν λεγόντων περὶ ἀρχῆς καὶ αἰτίας οὐθεὶς ἔξω τῶν ἐν τοῖς περὶ φύσεως ἡμῖν διωρισμένων εἴρηκεν, ἀλλὰ πάντες ἀμυδρῶς μὲν ἐκείνων δέ πως φαίνονται θιγγάνοντες.

οἱ μὲν γὰρ ὡς ὕλην τὴν ἀρχὴν λέγουσιν, ἄν τε μίαν ἄν τε πλείους ὑποθῶσι, καὶ ἐάν τε σῶμα ἐάν τε ἀσώματον τοῦτο τιθῶσιν (οἷον Πλάτων μὲν τὸ μέγα καὶ τὸ μικρὸν λέγων, οἱ δ' Ἰταλικοὶ τὸ ἄπειρον, Ἐμπεδοκλῆς δὲ πῦρ καὶ γῆν καὶ ὕδωρ καὶ ἀέρα, Ἀναξαγόρας δὲ τὴν τῶν ὁμοιομερῶν ἀπειρίαν· οὗτοί τε δὴ πάντες τῆς τοιαύτης αἰτίας ἡμμένοι εἰσί, καὶ ἔτι ὅσοι ἀέρα ἢ πῦρ ἢ ὕδωρ ἢ πυρὸς μὲν πυκνότερον ἀέρος δὲ λεπτότερον· καὶ γὰρ τοιοῦτόν τινες εἰρήκασιν εἶναι τὸ πρῶτον στοιχεῖον)·—οὗτοι μὲν οὖν ταύτης τῆς αἰτίας ἥψαντο μόνον, ἕτεροι δέ τινες ὅθεν ἡ ἀρχὴ τῆς κινήσεως (οἷον ὅσοι φιλίαν καὶ νεῖκος ἢ νοῦν ἢ ἔρωτα ποιοῦσιν ἀρχήν)·

ENGLISH

We have gone over, concisely and in summary, who has spoken about the principles and the truth, and in what way. Still, we have gained this much from them: of those who speak about principle and cause, none has mentioned any beyond those we distinguished in our works on nature; all of them evidently touch on these in some way, though dimly.

Some speak of the principle as matter, whether they suppose one or more, and whether they posit it as body or as incorporeal. (Plato, for example, speaks of the great and the small; the Italians of the unlimited; Empedocles of fire, earth, water and air; Anaxagoras of the infinity of things made of like parts. All of these have grasped this sort of cause, as have all who speak of air or fire or water, or of something denser than fire and finer than air; for some have said the primary element is like that.)—These thinkers, then, grasped only this cause; but certain others grasped the source from which motion begins (for instance, those who

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make Love and Strife, or intellect, or Eros a principle).

τὸ δὲ τί ἦν εἶναι καὶ τὴν οὐσίαν σαφῶς μὲν οὐθεὶς ἀποδέδωκε, 988b μάλιστα δ' οἱ τὰ εἴδη τιθέντες λέγουσιν (οὔτε γὰρ ὡς ὕλην τοῖς αἰσθητοῖς τὰ εἴδη καὶ τὸ ἓν τοῖς εἴδεσιν οὔθ' ὡς ἐντεῦθεν τὴν ἀρχὴν τῆς κινήσεως γιγνομένην ὑπολαμβάνουσιν—ἀκινησίας γὰρ αἴτια μᾶλλον καὶ τοῦ ἐν ἠρεμίᾳ εἶναι φασιν—ἀλλὰ τὸ τί ἦν εἶναι ἑκάστῳ τῶν ἄλλων τὰ εἴδη παρέχονται, τοῖς δ' εἴδεσι τὸ ἕν)· τὸ δ' οὗ ἕνεκα αἱ πράξεις καὶ αἱ μεταβολαὶ καὶ αἱ κινήσεις τρόπον μέν τινα λέγουσιν αἴτιον, οὕτω δὲ οὐ λέγουσιν οὐδ' ὅνπερ πέφυκεν.

The essence and the substance no one has clearly set out, 988b but those who posit the Forms come closest to it. (For they do not suppose that the Forms are the matter of perceptible things, and the One the matter of the Forms, nor that the beginning of motion comes from them—they say rather that they are causes of motionlessness and of being at rest; but they offer the Forms as the essence of each of the other things, and the One as that of the Forms.) That for the sake of which actions and changes and motions take place they do in a way call a cause, but not in this way, nor in the way in which it is a cause by nature.

988b οἱ μὲν γὰρ νοῦν λέγοντες ἢ φιλίαν ὡς ἀγαθὸν μὲν ταύτας τὰς αἰτίας τιθέασιν, οὐ μὴν ὡς ἕνεκά γε τούτων ἢ ὂν ἢ γιγνόμενόν τι τῶν ὄντων ἀλλ' ὡς ἀπὸ τούτων τὰς κινήσεις οὔσας λέγουσιν· ὡς δ' αὕτως καὶ οἱ τὸ ἓν ἢ τὸ ὂν φάσκοντες εἶναι τὴν τοιαύτην φύσιν τῆς μὲν οὐσίας αἴτιόν φασιν εἶναι, οὐ μὴν τούτου γε ἕνεκα ἢ εἶναι ἢ γίγνεσθαι, ὥστε λέγειν τε καὶ μὴ λέγειν πως συμβαίνει αὐτοῖς τἀγαθὸν αἴτιον· οὐ γὰρ ἁπλῶς ἀλλὰ κατὰ συμβεβηκὸς λέγουσιν.—ὅτι μὲν οὖν ὀρθῶς διώρισται περὶ τῶν αἰτίων καὶ πόσα καὶ ποῖα, μαρτυρεῖν ἐοίκασιν ἡμῖν καὶ οὗτοι πάντες, οὐ δυνάμενοι θιγεῖν ἄλλης αἰτίας, πρὸς δὲ τούτοις ὅτι ζητητέαι αἱ ἀρχαὶ ἢ οὕτως ἅπασαι ἢ τινὰ τρόπον τοιοῦτον, δῆλον· πῶς δὲ τούτων ἕκαστος εἴρηκε καὶ πῶς ἔχει περὶ τῶν ἀρχῶν, τὰς ἐνδεχομένας ἀπορίας μετὰ τοῦτο διέλθωμεν περὶ αὐτῶν.

For those who speak of intellect or Love posit these causes as good; but they do not speak as though anything that is either is or comes to be for their sake, but as though motions come from them. In the same way, those who say that the one or being is such a nature say that it is the cause of substance, but not that anything is or comes to be for its sake. So it turns out that in a way they both do and do not say that the good is a cause; for they say it not without qualification but incidentally.—That we have correctly determined how many the causes are and of what kind, all these thinkers seem to bear witness, since they are unable to touch on any other cause. In addition, it is clear that the principles must be sought either all in this way or in some such way. Next, let us go through the puzzles that may be raised about how each of these thinkers has spoken, and how things stand with the principles.

CRITICISM OF THE EARLY THINKERS

Aristotle finds faults in the monists, Empedocles, Anaxagoras and the Pythagoreans.

GREEK

ENGLISH

ὅσοι μὲν οὖν ἕν τε τὸ πᾶν καὶ μίαν τινὰ φύσιν ὡς ὕλην τιθέασι, καὶ ταύτην σωματικὴν καὶ μέγεθος ἔχουσαν, δῆλον ὅτι πολλαχῶς ἁμαρτάνουσιν. τῶν γὰρ σωμάτων τὰ στοιχεῖα τιθέασι μόνον, τῶν δ' ἀσωμάτων οὔ, ὄντων καὶ ἀσωμάτων. καὶ περὶ γενέσεως καὶ φθορᾶς ἐπιχειροῦντες τὰς αἰτίας λέγειν, καὶ περὶ πάντων φυσιολογοῦντες, τὸ τῆς κινήσεως αἴτιον ἀναιροῦσιν. ἔτι δὲ τῷ τὴν οὐσίαν μηθενὸς αἰτίαν τιθέναι μηδὲ τὸ τί ἐστι, καὶ πρὸς τούτοις τῷ ῥᾳδίως τῶν ἁπλῶν σωμάτων λέγειν ἀρχὴν ὁτιοῦν πλὴν γῆς, οὐκ ἐπισκεψάμενοι τὴν ἐξ ἀλλήλων γένεσιν

Those, then, who posit that the universe is one, and that there is some one nature as matter, and this bodily and possessing magnitude, clearly go wrong in many ways. For they posit elements only of bodies, not of incorporeal things, though there are incorporeal things too. And in attempting to state the causes of coming-to-be and perishing, and giving a natural account of everything, they do away with the cause of motion. Further, they go wrong in not positing substance, or the what-it-is,

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πῶς ποιοῦνται, λέγω δὲ πῦρ καὶ ὕδωρ καὶ γῆν καὶ ἀέρα. τὰ μὲν γὰρ συγκρίσει τὰ δὲ διακρίσει ἐξ ἀλλήλων γίγνεται, τοῦτο δὲ πρὸς τὸ πρότερον εἶναι καὶ ὕστερον διαφέρει πλεῖστον.

τῇ μὲν γὰρ ἂν δόξειε στοιχειωδέστατον εἶναι πάντων ἐξ οὗ γίγνονται συγκρίσει πρώτου, [989a] τοιοῦτον δὲ τὸ μικρομερέστατον καὶ λεπτότατον ἂν εἴη τῶν σωμάτων (διόπερ ὅσοι πῦρ ἀρχὴν τιθέασι, μάλιστα ὁμολογουμένως ἂν τῷ λόγῳ τούτῳ λέγοιεν· τοιοῦτον δὲ καὶ τῶν ἄλλων ἕκαστος ὁμολογεῖ τὸ στοιχεῖον εἶναι τὸ τῶν σωμάτων· οὐθεὶς γοῦν ἠξίωσε τῶν ἓν λεγόντων γῆν εἶναι στοιχεῖον, δηλονότι διὰ τὴν μεγαλομέρειαν, τῶν δὲ τριῶν ἕκαστον στοιχείων εἴληφέ τινα κριτήν, οἱ μὲν γὰρ πῦρ οἱ δ' ὕδωρ οἱ δ' ἀέρα τοῦτ' εἶναί φασιν· καίτοι διὰ τί ποτ' οὐ καὶ τὴν γῆν λέγουσιν, ὥσπερ οἱ πολλοὶ τῶν ἀνθρώπων;

989a πάντα γὰρ εἶναί φασι γῆν, φησὶ δὲ καὶ Ἡσίοδος τὴν γῆν πρώτην γενέσθαι τῶν σωμάτων· οὕτως ἀρχαίαν καὶ δημοτικὴν συμβέβηκεν εἶναι τὴν ὑπόληψιν)·—κατὰ μὲν οὖν τοῦτον τὸν λόγον οὔτ' εἴ τις τούτων τι λέγει πλὴν πυρός, οὔτ' εἴ τις ἀέρος μὲν πυκνότερον τοῦτο τίθησιν ὕδατος δὲ λεπτότερον, οὐκ ὀρθῶς ἂν λέγοι· εἰ δ' ἔστι τὸ τῇ γενέσει ὕστερον τῇ φύσει πρότερον, τὸ δὲ πεπεμμένον καὶ συγκεκριμένον ὕστερον τῇ γενέσει, τοὐναντίον ἂν εἴη τούτων, ὕδωρ μὲν ἀέρος πρότερον γῆ δὲ ὕδατος.—περὶ μὲν οὖν τῶν μίαν τιθεμένων αἰτίαν οἵαν εἴπομεν, ἔστω ταῦτ' εἰρημένα· τὸ δ' αὐτὸ κἂν εἴ τις ταῦτα πλείω τίθησιν, οἷον Ἐμπεδοκλῆς τέτταρά φησιν εἶναι σώματα τὴν ὕλην. καὶ γὰρ τούτῳ τὰ μὲν ταὐτὰ τὰ δ' ἴδια συμβαίνειν ἀνάγκη.

γιγνόμενά τε γὰρ ἐξ ἀλλήλων ὁρῶμεν ὡς οὐκ ἀεὶ διαμένοντος πυρὸς καὶ γῆς τοῦ αὐτοῦ σώματος (εἴρηται δὲ ἐν τοῖς περὶ φύσεως περὶ αὐτῶν), καὶ περὶ τῆς τῶν κινουμένων αἰτίας, πότερον ἓν ἢ δύο θετέον, οὔτ' ὀρθῶς οὔτε εὐλόγως οἰητέον εἰρῆσθαι παντελῶς. ὅλως τε ἀλλοίωσιν ἀναιρεῖσθαι ἀνάγκη τοῖς οὕτω λέγουσιν· οὐ γὰρ ἐκ θερμοῦ ψυχρὸν οὐδὲ ἐκ ψυχροῦ θερμὸν ἔσται. τὶ γὰρ αὐτὰ ἂν πάσχοι τἀναντία, καὶ τὶς εἴη ἂν μία φύσις ἡ γιγνομένη πῦρ καὶ ὕδωρ, ὃ ἐκεῖνος οὔ φησιν. Ἀναξαγόραν δ' εἴ τις ὑπολάβοι δύο λέγειν στοιχεῖα, μάλιστ' ἂν

ENGLISH

as the cause of anything; and in addition, in readily calling any of the simple bodies except earth a principle, without examining how they are produced out of one another—I mean fire, water, earth and air. For some of these come to be out of one another by combination and others by separation, and this makes the greatest difference to their being prior or posterior.

In one way, the most elementary of all would seem to be that out of which, as first, things come to be by combination; [989a] and such would be the finest-grained and subtlest of bodies. (That is why those who posit fire as the principle would be speaking most in agreement with this argument. Each of the others too agrees that the element of bodies is of this sort. At any rate, none of those who speak of one element thought fit to make earth the element, clearly because of the coarseness of its parts; whereas each of the other three elements has found some judge in its favor—some say fire is the element, others water, others air. Yet why on earth do they not say earth too, as most people do?

For people say that everything is earth; and Hesiod too says that earth was the first of bodies to come to be—so ancient and popular this belief turns out to be.)—By this argument, then, anyone who names any of these except fire would not be speaking correctly, nor would anyone who posits something denser than air but finer than water. But if what is later in coming-to-be is prior in nature, and what is concocted and compounded is later in coming-to-be, the opposite would hold: water would be prior to air, and earth to water.—Concerning those who posit one cause of the kind we described, let this suffice. The same applies if someone posits more than one, as Empedocles says that matter is four bodies. For the same consequences must follow for him, and some peculiar to him.

For we see them coming to be out of one another, so that the same body does not always remain fire or earth (we have spoken about these matters in our works on nature). And on the cause of things' being moved—whether one or two should be posited—we must think he has spoken neither correctly nor altogether reasonably. In general, those who speak this way must do away with alteration; for hot will not come from cold, nor cold from hot. For there would have to be something that itself

GREEK

ὑπολάβοι κατὰ λόγον, ὃν ἐκεῖνος αὐτὸς μὲν οὐ διήρθρωσεν, ἠκολούθησε μέντ' ἂν ἐξ ἀνάγκης τοῖς ἐπάγουσιν αὐτόν.

ἀτόπου γὰρ ὄντος καὶ ἄλλως τοῦ φάσκειν μεμῖχθαι τὴν ἀρχὴν πάντα, 989b καὶ διὰ τὸ συμβαίνειν ἄμικτα δεῖν προϋπάρχειν καὶ διὰ τὸ μὴ πεφυκέναι τῷ τυχόντι μίγνυσθαι τὸ τυχόν, πρὸς δὲ τούτοις ὅτι τὰ πάθη καὶ τὰ συμβεβηκότα χωρίζοιτ' ἂν τῶν οὐσιῶν (τῶν γὰρ αὐτῶν μῖξίς ἐστι καὶ χωρισμός), ὅμως εἴ τις ἀκολουθήσειε συνδιαρθρῶν ἃ βούλεται λέγειν, ἴσως ἂν φανείη καινοπρεπεστέρως λέγων.

989b ὅτε γὰρ οὐθὲν ἦν ἀποκεκριμένον, δῆλον ὡς οὐθὲν ἦν ἀληθὲς εἰπεῖν κατὰ τῆς οὐσίας ἐκείνης, λέγω δ' οἷον ὅτι οὔτε λευκὸν οὔτε μέλαν ἢ φαιὸν ἢ ἄλλο χρῶμα, ἀλλ' ἄχρων ἦν ἐξ ἀνάγκης· εἶχε γὰρ ἄν τι τούτων τῶν χρωμάτων· ὁμοίως δὲ καὶ ἄχυμον τῷ αὐτῷ λόγῳ τούτῳ, οὐδὲ ἄλλο τῶν ὁμοίων οὐθέν· οὔτε γὰρ ποιόν τι οἷόν τε αὐτὸ εἶναι οὔτε ποσὸν οὔτε τί. τῶν γὰρ ἐν μέρει τι λεγομένων εἰδῶν ὑπῆρχεν ἂν αὐτῷ, τοῦτο δὲ ἀδύνατον μεμιγμένων γε πάντων· ἤδη γὰρ ἂν ἀπεκέκριτο, φησὶ δ' εἶναι μεμιγμένα πάντα πλὴν τοῦ νοῦ, τοῦτον δὲ ἀμιγῆ μόνον καὶ καθαρόν.

ἐκ δὴ τούτων συμβαίνει λέγειν αὐτῷ τὰς ἀρχὰς τό τε ἕν (τοῦτο γὰρ ἁπλοῦν καὶ ἀμιγές) καὶ θάτερον, οἷον τίθεμεν τὸ ἀόριστον πρὶν ὁρισθῆναι καὶ μετασχεῖν εἴδους τινός, ὥστε λέγει μὲν οὔτ' ὀρθῶς οὔτε σαφῶς, βούλεται μέντοι τι παραπλήσιον τοῖς τε ὕστερον λέγουσι καὶ τοῖς νῦν φαινομένοις μᾶλλον.—ἀλλὰ γὰρ οὗτοι μὲν τοῖς περὶ γένεσιν λόγοις καὶ φθορὰν καὶ κίνησιν οἰκεῖοι τυγχάνουσι μόνον (σχεδὸν γὰρ περὶ τῆς τοιαύτης οὐσίας καὶ τὰς ἀρχὰς καὶ τὰς αἰτίας ζητοῦσι μόνης)· ὅσοι δὲ περὶ μὲν ἁπάντων τῶν ὄντων ποιοῦνται τὴν θεωρίαν, τῶν δ' ὄντων τὰ μὲν αἰσθητὰ τὰ δ' οὐκ αἰσθητὰ τιθέασι, δῆλον ὡς περὶ ἀμφοτέρων τῶν γενῶν ποιοῦνται τὴν ἐπίσκεψιν· διὸ μᾶλλον ἄν τις ἐνδιατρίψειε περὶ αὐτῶν, τί καλῶς ἢ μὴ καλῶς λέγουσιν εἰς τὴν τῶν νῦν ἡμῖν προκειμένων σκέψιν.

ENGLISH

undergoes these contraries, some one nature that becomes fire and water—which he denies. As for Anaxagoras, if one were to suppose that he speaks of two elements, one would be supposing it very much in accordance with an argument that he did not himself articulate, but that he would necessarily have accepted if someone had led him to it.

For it is absurd in other respects to say that at the beginning all things were mixed— 989b both because it follows that they must first have existed unmixed, and because it is not natural for just anything to be mixed with just anything, and also because attributes and accidents would then be separable from substances (for the same things that are mixed can be separated). Nevertheless, if one were to follow him, articulating what he means, he would perhaps appear to be speaking in a more up-to-date way.

For when nothing had been separated out, clearly nothing could truly be said of that substance. I mean, for instance, that it was neither white nor black nor gray nor any other color, but was necessarily colorless; otherwise it would have had one of these colors. Likewise, by the same argument, it was flavorless, and had no other such attribute either. For it could not be of any quality or any quantity, or be a what. Otherwise one of the particular Forms would have belonged to it; and this is impossible when all things are mixed together, for then it would already have been separated out. But he says that all things are mixed except intellect, and that this alone is unmixed and pure.

From this it follows that he says the principles are the one (for this is simple and unmixed) and the other, which is like what we posit as the indeterminate before it is determined and comes to share in some form. So he speaks neither correctly nor clearly, but he means something close to what later thinkers say and to what is now more evident.—But these thinkers are at home only in discussions of coming-to-be, perishing and motion; for it is pretty much only for this sort of substance that they seek the principles and causes. But those who make their study about all the things that are, and posit that among the things that are some are perceptible and others not perceptible, clearly examine both kinds. That is why one might spend more time on them, asking what they say well or badly with a view to the inquiry now before us.

GREEK

οἱ μὲν οὖν καλούμενοι Πυθαγόρειοι ταῖς μὲν ἀρχαῖς καὶ τοῖς στοιχείοις ἐκτοπωτέροις χρῶνται τῶν φυσιολόγων (τὸ δ' αἴτιον ὅτι παρέλαβον αὐτὰς οὐκ ἐξ αἰσθητῶν· τὰ γὰρ μαθηματικὰ τῶν ὄντων ἄνευ κινήσεώς ἐστιν ἔξω τῶν περὶ τὴν ἀστρολογίαν), διαλέγονται μέντοι καὶ πραγματεύονται περὶ φύσεως πάντα· γεννῶσί τε γὰρ τὸν οὐρανόν, [990a] καὶ περὶ τὰ τούτου μέρη καὶ τὰ πάθη καὶ τὰ ἔργα διατηροῦσι τὸ συμβαῖνον, καὶ τὰς ἀρχὰς καὶ τὰ αἴτια εἰς ταῦτα καταναλίσκουσιν, ὡς ὁμολογοῦντες τοῖς ἄλλοις φυσιολόγοις ὅτι τό γε ὂν τοῦτ' ἐστὶν ὅσον αἰσθητόν ἐστι καὶ περιείληφεν ὁ καλούμενος οὐρανός. τὰς δ' αἰτίας καὶ τὰς ἀρχάς, ὥσπερ εἴπομεν, ἱκανὰς λέγουσιν ἐπαναβῆναι καὶ ἐπὶ τὰ ἀνωτέρω τῶν ὄντων, καὶ μᾶλλον ἢ τοῖς περὶ φύσεως λόγοις ἁρμοττούσας.

990a ἐκ τίνος μέντοι τρόπου κίνησις ἔσται πέρατος καὶ ἀπείρου μόνων ὑποκειμένων καὶ περιττοῦ καὶ ἀρτίου, οὐθὲν λέγουσιν, ἢ πῶς δυνατὸν ἄνευ κινήσεως καὶ μεταβολῆς γένεσιν εἶναι καὶ φθορὰν ἢ τὰ τῶν φερομένων ἔργα κατὰ τὸν οὐρανόν. ἔτι δὲ εἴτε δοίη τις αὐτοῖς ἐκ τούτων εἶναι μέγεθος εἴτε δειχθείη τοῦτο, ὅμως τίνα τρόπον ἔσται τὰ μὲν κοῦφα τὰ δὲ βάρος ἔχοντα τῶν σωμάτων; ἐξ ὧν γὰρ ὑποτίθενται καὶ λέγουσιν, οὐθὲν μᾶλλον περὶ τῶν μαθηματικῶν λέγουσι σωμάτων ἢ τῶν αἰσθητῶν· διὸ περὶ πυρὸς ἢ γῆς ἢ τῶν ἄλλων τῶν τοιούτων σωμάτων οὐδ' ὁτιοῦν εἰρήκασιν, ἅτε οὐθὲν περὶ τῶν αἰσθητῶν οἶμαι λέγοντες ἴδιον.

ἔτι δὲ πῶς δεῖ λαβεῖν αἴτια μὲν εἶναι τὰ τοῦ ἀριθμοῦ πάθη καὶ τὸν ἀριθμὸν τῶν κατὰ τὸν οὐρανὸν ὄντων καὶ γιγνομένων καὶ ἐξ ἀρχῆς καὶ νῦν, ἀριθμὸν δ' ἄλλον μηθένα εἶναι παρὰ τὸν ἀριθμὸν τοῦτον ἐξ οὗ συνέστηκεν ὁ κόσμος; ὅταν γὰρ ἐν τῳδὶ μὲν τῷ μέρει δόξα καὶ καιρὸς αὐτοῖς ᾖ, μικρὸν δὲ ἄνωθεν ἢ κάτωθεν ἀδικία καὶ κρίσις ἢ μῖξις, ἀπόδειξιν δὲ λέγωσιν ὅτι τούτων μὲν ἕκαστον ἀριθμός ἐστι, συμβαίνει δὲ κατὰ τὸν τόπον τοῦτον ἤδη πλῆθος εἶναι τῶν συνισταμένων μεγεθῶν διὰ τὸ τὰ πάθη ταῦτα ἀκολουθεῖν τοῖς τόποις ἑκάστοις, πότερον οὗτος ὁ αὐτός ἐστιν ἀριθμός, ὁ ἐν τῷ οὐρανῷ, ὃν δεῖ λαβεῖν ὅτι τούτων ἕκαστόν ἐστιν, ἢ παρὰ τοῦτον ἄλλος;

ENGLISH

The so-called Pythagoreans use principles and elements stranger than those of the natural philosophers. (The reason is that they did not take them from perceptible things; for the objects of mathematics are without motion, except those studied in astronomy.) Yet all their discussions and investigations are about nature. They generate the heaven, [990a] and they observe what happens to its parts, attributes and activities, and they use up their principles and causes on these—as if they agreed with the other natural philosophers that what is, is just so much as is perceptible and is enclosed by what is called the heaven. But the causes and principles they speak of are, as we said, sufficient to lead up even to the higher kinds of beings, and better suited to these than to accounts of nature.

Yet how there will be motion, if only limit and unlimited, odd and even, are posited as underlying, they do not say at all; nor how, without motion and change, there can be coming-to-be and perishing, or the activities of the bodies that travel through the heavens. Further, even if one granted them that magnitude is made out of these, or even if this were proved, still, how will some bodies be light and others have weight? For from what they posit and say, they are speaking no more about perceptible bodies than about mathematical ones. That is why they have said nothing whatever about fire or earth or the other such bodies—since, I suppose, they say nothing peculiar to perceptible things.

Further, how are we to understand that the attributes of number, and number, are the causes of what is and comes to be in the heaven, both from the beginning and now, and yet that there is no other number besides this number of which the world is composed? For when in their view opinion and the right moment are in one particular region, and a little above or below are injustice and separation or mixture, and they offer as proof that each of these is a number—and that in this place there already happens to be a plurality of the magnitudes composed of number, because these attributes go with their respective places—is this number in the heaven, which we must take each of these things to be, the same number, or is it another besides this one?

Plato says it is a different one; and yet he too thinks that both these things and their causes are

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ὁ μὲν γὰρ Πλάτων ἕτερον εἶναί φησιν· καίτοι κἀκεῖνος ἀριθμοὺς οἴεται καὶ ταῦτα εἶναι καὶ τὰς τούτων αἰτίας, ἀλλὰ τοὺς μὲν νοητοὺς αἰτίους τούτους δὲ αἰσθητούς.	numbers—but that the causal numbers are intelligible, while these are perceptible.

AGAINST THE FORMS

A series of objections to Plato's theory of Forms and Form-numbers.

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περὶ μὲν οὖν τῶν Πυθαγορείων ἀφείσθω τὰ νῦν (ἱκανὸν γὰρ αὐτῶν ἅψασθαι τοσοῦτον)· 990b οἱ δὲ τὰς ἰδέας αἰτίας τιθέμενοι πρῶτον μὲν ζητοῦντες τωνδὶ τῶν ὄντων λαβεῖν τὰς αἰτίας ἕτερα τούτοις ἴσα τὸν ἀριθμὸν ἐκόμισαν, ὥσπερ εἴ τις ἀριθμῆσαι βουλόμενος ἐλαττόνων μὲν ὄντων οἴοιτο μὴ δυνήσεσθαι, πλείω δὲ ποιήσας ἀριθμοίη (σχεδὸν γὰρ ἴσα—ἢ οὐκ ἐλάττω—ἐστὶ τὰ εἴδη τούτοις περὶ ὧν ζητοῦντες τὰς αἰτίας ἐκ τούτων ἐπ' ἐκεῖνα προῆλθον· καθ' ἕκαστον γὰρ ὁμώνυμόν τι ἔστι καὶ παρὰ τὰς οὐσίας, τῶν τε ἄλλων ἔστιν ἓν ἐπὶ πολλῶν, καὶ ἐπὶ τοῖσδε καὶ ἐπὶ τοῖς ἀϊδίοις)· ἔτι δὲ καθ' οὓς τρόπους δείκνυμεν ὅτι ἔστι τὰ εἴδη, κατ' οὐθένα φαίνεται τούτων· ἐξ ἐνίων μὲν γὰρ οὐκ ἀνάγκη γίγνεσθαι συλλογισμόν, ἐξ ἐνίων δὲ καὶ οὐχ ὧν οἰόμεθα τούτων εἴδη γίγνεται.	Let us leave the Pythagoreans for now; it is enough to have touched on them this far. 990b As for those who posit the Forms as causes: first, in seeking to grasp the causes of the things around us, they introduced others equal to them in number—as if someone who wanted to count things thought he could not do it while they were fewer, but counted them after making them more. (For the Forms are about equal to—or not fewer than—the things in seeking whose causes these thinkers proceeded from them to the Forms. For corresponding to each thing there is something with the same name, apart from the substances; and for the other things there is a one over many, both for things here and for eternal things.) Further, none of the ways in which we show that the Forms exist is convincing. From some no deduction necessarily follows; from others there arise Forms even of things of which we think there are none.[23]
990b κατά τε γὰρ τοὺς λόγους τοὺς ἐκ τῶν ἐπιστημῶν εἴδη ἔσται πάντων ὅσων ἐπιστῆμαι εἰσί, καὶ κατὰ τὸ ἓν ἐπὶ πολλῶν καὶ τῶν ἀποφάσεων, κατὰ δὲ τὸ νοεῖν τι φθαρέντος τῶν φθαρτῶν· φάντασμα γάρ τι τούτων ἔστιν. ἔτι δὲ οἱ ἀκριβέστεροι τῶν λόγων οἱ μὲν τῶν πρός τι ποιοῦσιν ἰδέας, ὧν οὔ φαμεν εἶναι καθ' αὐτὸ γένος, οἱ δὲ τὸν τρίτον ἄνθρωπον λέγουσιν.	For according to the arguments from the sciences, there will be Forms of all the things of which there are sciences; according to the one-over-many argument, Forms even of negations; and according to the argument from thinking of something after it has perished, Forms of perishable things, since there is an image of these. Further, of the more precise arguments, some make Forms of relatives, of which we deny there is a class in its own right, and others introduce the "third man."[24]
ὅλως τε ἀναιροῦσιν οἱ περὶ τῶν εἰδῶν λόγοι ἃ μᾶλλον εἶναι βουλόμεθα [οἱ λέγοντες εἴδη] τοῦ τὰς ἰδέας εἶναι· συμβαίνει γὰρ μὴ εἶναι τὴν δυάδα πρώτην ἀλλὰ τὸν ἀριθμόν, καὶ τὸ πρός τι τοῦ καθ' αὑτό, καὶ πάνθ' ὅσα τινὲς ἀκολουθήσαντες ταῖς περὶ τῶν ἰδεῶν δόξαις ἠναντιώθησαν ταῖς ἀρχαῖς.—ἔτι κατὰ μὲν τὴν ὑπόληψιν καθ' ἣν εἶναί φαμεν τὰς ἰδέας οὐ μόνον τῶν οὐσιῶν ἔσται εἴδη ἀλλὰ πολλῶν καὶ ἑτέρων (καὶ γὰρ τὸ νόημα ἓν οὐ	In general, the arguments for the Forms do away with things whose existence we who speak of Forms care about more than the existence of the Forms. For it follows that what is first is not the dyad but number, and that the relative is prior to what is in its own right, and all the other conclusions by which some, following out the opinions about the Forms, have come into conflict with the

23 Aristotle says "we" here because he writes as a member of Plato's school.
24 The "third man": the objection that if a form of man is needed to explain what men have in common, another is needed for men and that form together, and so on without end.

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μόνον περὶ τὰς οὐσίας ἀλλὰ καὶ κατὰ τῶν ἄλλων ἐστί, καὶ ἐπιστῆμαι οὐ μόνον τῆς οὐσίας εἰσὶν ἀλλὰ καὶ ἑτέρων, καὶ ἄλλα δὲ μυρία συμβαίνει τοιαῦτα)· κατὰ δὲ τὸ ἀναγκαῖον καὶ τὰς δόξας τὰς περὶ αὐτῶν, εἰ ἔστι μεθεκτὰ τὰ εἴδη, τῶν οὐσιῶν ἀναγκαῖον ἰδέας εἶναι μόνον.		principles.—Further, according to the assumption on which we say there are Forms, there will be Forms not only of substances but of many other things too. (For the single thought is not only of substances but also of other things, and there are sciences not only of substance but also of other things, and countless other such consequences follow.) But according to what necessarily follows, and to the opinions about them, if the Forms can be participated in, there must be Forms only of substances.
οὐ γὰρ κατὰ συμβεβηκὸς μετέχονται ἀλλὰ δεῖ ταύτῃ ἑκάστου μετέχειν ᾗ μὴ καθ' ὑποκειμένου λέγεται (λέγω δ' οἷον, εἴ τι αὐτοδιπλασίου μετέχει, τοῦτο καὶ ἀϊδίου μετέχει, ἀλλὰ κατὰ συμβεβηκός· συμβέβηκε γὰρ τῷ διπλασίῳ ἀϊδίῳ εἶναι), ὥστ' ἔσται οὐσία τὰ εἴδη· ταὐτὰ δὲ ἐνταῦθα οὐσίαν σημαίνει κἀκεῖ·	991a	ἢ τί ἔσται τὸ εἶναι τι παρὰ ταῦτα, τὸ ἓν ἐπὶ πολλῶν;
καὶ εἰ μὲν ταὐτὸ εἶδος τῶν ἰδεῶν καὶ τῶν μετεχόντων, ἔσται τι κοινόν (τί γὰρ μᾶλλον ἐπὶ τῶν φθαρτῶν δυάδων, καὶ τῶν πολλῶν μὲν ἀϊδίων δέ, τὸ δυὰς ἓν καὶ ταὐτόν, ἢ ἐπί τ' αὐτῆς καὶ τῆς τινός;)· εἰ δὲ μὴ τὸ αὐτὸ εἶδος, ὁμώνυμα ἂν εἴη, καὶ ὅμοιον ὥσπερ ἂν εἴ τις καλοῖ ἄνθρωπον τόν τε Καλλίαν καὶ τὸ ξύλον, μηδεμίαν κοινωνίαν ἐπιβλέψας αὐτῶν.—πάντων δὲ μάλιστα διαπορήσειεν ἄν τις τί ποτε συμβάλλεται τὰ εἴδη τοῖς ἀϊδίοις τῶν αἰσθητῶν ἢ τοῖς γιγνομένοις καὶ φθειρομένοις· οὔτε γὰρ κινήσεως οὔτε μεταβολῆς οὐδεμιᾶς ἐστὶν αἴτια αὐτοῖς.		And if the Forms and the things that participate in them have the same form, there will be something common to them. (For why should "two" be one and the same in the case of the perishable twos and the twos that are many but eternal, any more than in the case of the two itself and a particular two?) But if the form is not the same, they would share only the name, as if someone were to call both Callias and a piece of wood "human" without observing anything common to them.—Above all, one might be puzzled as to what on earth the Forms contribute either to the eternal things among perceptibles or to those that come to be and perish. For they are not the cause of any motion or change in them.
ἀλλὰ μὴν οὔτε πρὸς τὴν ἐπιστήμην οὐθὲν βοηθεῖ τὴν τῶν ἄλλων (οὐδὲ γὰρ οὐσία ἐκεῖνα τούτων· ἐν τούτοις γὰρ ἂν ἦν), οὔτε εἰς τὸ εἶναι, μὴ ἐνυπάρχοντά γε τοῖς μετέχουσιν· οὕτω μὲν γὰρ ἂν ἴσως αἴτια δόξειεν εἶναι ὡς τὸ λευκὸν μεμιγμένον τῷ λευκῷ, ἀλλ' οὗτος μὲν ὁ λόγος λίαν εὐκίνητος, ὃν Ἀναξαγόρας μὲν πρῶτος Εὔδοξος δ' ὕστερον καὶ ἄλλοι τινὲς ἔλεγον (ῥᾴδιον γὰρ συναγαγεῖν πολλὰ καὶ ἀδύνατα πρὸς τὴν τοιαύτην δόξαν)· ἀλλὰ μὴν οὐδ' ἐκ τῶν εἰδῶν ἐστὶ τἆλλα κατ' οὐθένα τρόπον τῶν εἰωθότων λέγεσθαι. τὸ δὲ λέγειν παραδείγματα αὐτὰ εἶναι καὶ μετέχειν αὐτῶν τἆλλα κενολογεῖν ἐστὶ καὶ		Nor, again, do they help at all toward knowledge of the other things (for they are not even their substance; if they were, they would be in them), nor toward their being, since they are not present in the things that participate in them. If they were, they might perhaps be thought to be causes, as white is a cause by being mixed into a white thing. But this argument, which Anaxagoras first and Eudoxus later, and certain others, put forward, is very easily upset; for it is easy to collect many impossibilities against such a view. Nor, again, do the other things come from the Forms in any of the

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μεταφορὰς λέγειν ποιητικάς. τί γάρ ἐστι τὸ ἐργαζόμενον πρὸς τὰς ἰδέας ἀποβλέπον;	usual senses of "from." And to say that the Forms are patterns and that the other things participate in them is to speak emptily and use poetic metaphors. For what is it that does the work, looking to the Forms?[25]
ἐνδέχεταί τε καὶ εἶναι καὶ γίγνεσθαι ὅμοιον ὁτιοῦν καὶ μὴ εἰκαζόμενον πρὸς ἐκεῖνο, ὥστε καὶ ὄντος Σωκράτους καὶ μὴ ὄντος γένοιτ' ἂν οἷος Σωκράτης· ὁμοίως δὲ δῆλον ὅτι κἂν εἰ ἦν ὁ Σωκράτης ἀΐδιος. ἔσται τε πλείω παραδείγματα τοῦ αὐτοῦ, ὥστε καὶ εἴδη, οἷον τοῦ ἀνθρώπου τὸ ζῷον καὶ τὸ δίπουν, ἅμα δὲ καὶ τὸ αὐτοάνθρωπος. ἔτι οὐ μόνον τῶν αἰσθητῶν παραδείγματα τὰ εἴδη ἀλλὰ καὶ αὐτῶν, οἷον τὸ γένος, ὡς γένος εἰδῶν· ὥστε τὸ αὐτὸ ἔσται παράδειγμα καὶ εἰκών. [991b] ἔτι δόξειεν ἂν ἀδύνατον εἶναι χωρὶς τὴν οὐσίαν καὶ οὗ ἡ οὐσία· ὥστε πῶς ἂν αἱ ἰδέαι οὐσίαι τῶν πραγμάτων οὖσαι χωρὶς εἶεν;	Anything can both be and come to be like something else without being copied from it; so whether Socrates exists or not, someone like Socrates might come to be—and clearly the same would hold even if Socrates were eternal. There will also be several patterns of the same thing, and so several Forms: of human being, for instance, animal and two-footed, and at the same time also the human itself. Further, the Forms will be patterns not only of perceptible things but also of Forms themselves—the genus, for instance, as genus of species—so that the same thing will be both pattern and image. [991b] Further, it would seem impossible for the substance and that of which it is the substance to be separate; so how could the Forms, being the substances of things, be separate?
991b ἐν δὲ τῷ Φαίδωνι οὕτω λέγεται, ὡς καὶ τοῦ εἶναι καὶ τοῦ γίγνεσθαι αἴτια τὰ εἴδη ἐστίν· καίτοι τῶν εἰδῶν ὄντων ὅμως οὐ γίγνεται τὰ μετέχοντα ἂν μὴ ᾖ τὸ κινῆσον, καὶ πολλὰ γίγνεται ἕτερα, οἷον οἰκία καὶ δακτύλιος, ὧν οὔ φαμεν εἴδη εἶναι· ὥστε δῆλον ὅτι ἐνδέχεται καὶ τἆλλα καὶ εἶναι καὶ γίγνεσθαι διὰ τοιαύτας αἰτίας οἵας καὶ τὰ ῥηθέντα νῦν.—ἔτι εἴπερ εἰσὶν ἀριθμοὶ τὰ εἴδη, πῶς αἴτιοι ἔσονται; πότερον ὅτι ἕτεροι ἀριθμοί εἰσι τὰ ὄντα, οἷον ὁδὶ μὲν ⟨ὁ⟩ ἀριθμὸς ἄνθρωπος ὁδὶ δὲ Σωκράτης ὁδὶ δὲ Καλλίας; τί οὖν ἐκεῖνοι τούτοις αἴτιοί εἰσιν; οὐδὲ γὰρ εἰ οἱ μὲν ἀΐδιοι οἱ δὲ μή, οὐδὲν διοίσει. εἰ δ' ὅτι λόγοι ἀριθμῶν τἀνταῦθα, οἷον ἡ συμφωνία, δῆλον ὅτι ἐστὶν ἕν γέ τι ὧν εἰσὶ λόγοι.	In the *Phaedo* it is said that the Forms are causes both of being and of coming-to-be. Yet even if the Forms exist, the things that participate in them do not come to be unless there is something to set them in motion; and many other things come to be—a house or a ring, for instance—of which we say there are no Forms. So clearly the other things too can both be and come to be through causes of the same kind as those of the things just mentioned.—Further, if the Forms are numbers, how will they be causes? Is it because the things that are are other numbers—this number, say, a human being, this one Socrates, this one Callias? Then why are those numbers the causes of these? It will make no difference even if the ones are eternal and the others not. But if it is because things here are ratios of numbers, as a musical consonance is, clearly there is some one thing of which they are ratios.[26]
εἰ δή τι τοῦτο, ἡ ὕλη, φανερὸν ὅτι καὶ αὐτοὶ οἱ ἀριθμοὶ λόγοι τινὲς ἔσονται ἑτέρου πρὸς ἕτερον. λέγω δ' οἷον, εἰ ἔστιν ὁ Καλλίας λόγος ἐν ἀριθμοῖς πυρὸς καὶ γῆς καὶ ὕδατος καὶ ἀέρος, καὶ ἄλλων τινῶν ὑποκειμένων ἔσται καὶ ἡ ἰδέα ἀριθμός· καὶ αὐτοάνθρωπος, εἴτ' ἀριθμός τις ὢν εἴτε μή, ὅμως ἔσται λόγος ἐν ἀριθμοῖς τινῶν καὶ οὐκ	If, then, there is something—the matter—it is evident that the numbers themselves too will be ratios of one thing to another. I mean, for instance, if Callias is a numerical ratio of fire, earth, water and air, the Form too will be a number of certain other underlying things; and the human itself,

25 Eudoxus of Cnidus: a mathematician and astronomer associated with Plato's Academy.
26 The *Phaedo*: Plato's dialogue on the last day and death of Socrates.

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ἀριθμός, οὐδ' ἔσται τις διὰ ταῦτα ἀριθμός. ἔτι ἐκ πολλῶν ἀριθμῶν εἷς ἀριθμὸς γίγνεται, ἐξ εἰδῶν δὲ ἓν εἶδος πῶς; εἰ δὲ μὴ ἐξ αὐτῶν ἀλλ' ἐκ τῶν ἐν τῷ ἀριθμῷ, οἷον ἐν τῇ μυριάδι, πῶς ἔχουσιν αἱ μονάδες; εἴτε γὰρ ὁμοειδεῖς, πολλὰ συμβήσεται ἄτοπα, εἴτε μὴ ὁμοειδεῖς, μήτε αὐταὶ ἀλλήλαις μήτε αἱ ἄλλαι πᾶσαι πάσαις· τίνι γὰρ διοίσουσιν ἀπαθεῖς οὖσαι;

whether it is a number of some sort or not, will still be a numerical ratio of certain things and not a number, nor will it be a number on that account. Further, from many numbers one number comes to be, but how does one Form come from Forms? And if it comes not from the Forms themselves but from the units in the number—in ten thousand, for instance—how do the units stand? If they are of the same kind, many absurd consequences will follow; and so too if they are not of the same kind—neither the units in a given number alike with one another, nor all the others alike with all the others. For in what will they differ, since they are without attributes?

οὔτε γὰρ εὔλογα ταῦτα οὔτε ὁμολογούμενα τῇ νοήσει. ἔτι δ' ἀναγκαῖον ἕτερον γένος ἀριθμοῦ κατασκευάζειν περὶ ὃ ἡ ἀριθμητική, καὶ πάντα τὰ μεταξὺ λεγόμενα ὑπό τινων, ἃ πῶς ἢ ἐκ τίνων ἐστὶν ἀρχῶν; ἢ διὰ τί μεταξὺ τῶν δεῦρό τ' ἔσται καὶ αὐτῶν; ἔτι αἱ μονάδες αἱ ἐν τῇ δυάδι ἑκατέρα ἔκ τινος προτέρας δυάδος· καίτοι ἀδύνατον. 992a ἔτι διὰ τί ἓν ὁ ἀριθμὸς συλλαμβανόμενος; ἔτι δὲ πρὸς τοῖς εἰρημένοις, εἴπερ εἰσὶν αἱ μονάδες διάφοροι, ἐχρῆν οὕτω λέγειν ὥσπερ καὶ ὅσοι τὰ στοιχεῖα τέτταρα ἢ δύο λέγουσιν· καὶ γὰρ τούτων ἕκαστος οὐ τὸ κοινὸν λέγει στοιχεῖον, οἷον τὸ σῶμα, ἀλλὰ πῦρ καὶ γῆν, εἴτ' ἔστι τι κοινόν, τὸ σῶμα, εἴτε μή.

These views are neither reasonable nor consistent with our conception. Further, they must construct another kind of number, with which arithmetic is concerned, and all the things that some call intermediates. How do these exist, or from what principles? And why will they be intermediate between the things here and the things themselves? Further, each of the units in the two will come from some prior two; yet that is impossible. 992a Further, why is a number, taken together, one? Further, in addition to what has been said, if the units are different, they should have spoken as those do who say the elements are four or two. Each of these thinkers names as the element not the common thing, body, but fire and earth—whether or not there is something common, body.

992a νῦν δὲ λέγεται ὡς ὄντος τοῦ ἑνὸς ὥσπερ πυρὸς ἢ ὕδατος ὁμοιομεροῦς· εἰ δ' οὕτως, οὐκ ἔσονται οὐσίαι οἱ ἀριθμοί, ἀλλὰ δῆλον ὅτι, εἴπερ ἐστί τι ἓν αὐτὸ καὶ τοῦτό ἐστιν ἀρχή, πλεοναχῶς λέγεται τὸ ἕν· ἄλλως γὰρ ἀδύνατον.—βουλόμενοι δὲ τὰς οὐσίας ἀνάγειν εἰς τὰς ἀρχὰς μήκη μὲν τίθεμεν ἐκ βραχέος καὶ μακροῦ, ἔκ τινος μικροῦ καὶ μεγάλου, καὶ ἐπίπεδον ἐκ πλατέος καὶ στενοῦ, σῶμα δ' ἐκ βαθέος καὶ ταπεινοῦ. καίτοι πῶς ἕξει ἢ τὸ ἐπίπεδον γραμμὴν ἢ τὸ στερεὸν γραμμὴν καὶ ἐπίπεδον; ἄλλο γὰρ γένος τὸ πλατὺ καὶ στενὸν καὶ βαθὺ καὶ ταπεινόν· ὥσπερ οὖν οὐδ' ἀριθμὸς ὑπάρχει ἐν αὐτοῖς, ὅτι τὸ πολὺ καὶ ὀλίγον ἕτερον τούτων, δῆλον ὅτι οὐδ' ἄλλο οὐθὲν τῶν ἄνω ὑπάρξει τοῖς κάτω.

But as it is, the one is spoken of as if it were made of like parts, like fire or water. If so, the numbers will not be substances. But clearly, if there is a one itself and this is a principle, "one" is said in more than one way; otherwise it is impossible.—When we wish to reduce substances to their principles, we derive lengths from the short and long, a kind of small and great; the plane from the wide and narrow; and body from the deep and shallow. Yet how will the plane contain a line, or the solid a line and a plane? For the wide and narrow is a different genus from the deep and shallow. So just as number is not present in these either, because the many and few are different from them, clearly none of the other higher things will belong to the lower either.

ἀλλὰ μὴν οὐδὲ γένος τὸ πλατὺ τοῦ βαθέος· ἦν γὰρ ἂν ἐπίπεδόν τι τὸ σῶμα. ἔτι αἱ στιγμαὶ ἐκ τίνος ἐνυπάρξουσιν; τούτῳ μὲν οὖν τῷ γένει καὶ διεμάχετο

Nor, again, is the wide a genus of which the deep is a species; for then body would be a kind of plane. Further, from what will the points be derived that

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Πλάτων ὡς ὄντι γεωμετρικῷ δόγματι, ἀλλ' ἐκάλει ἀρχὴν γραμμῆς—τοῦτο δὲ πολλάκις ἐτίθει—τὰς ἀτόμους γραμμάς. καίτοι ἀνάγκη τούτων εἶναί τι πέρας· ὥστ' ἐξ οὗ λόγου γραμμὴ ἔστι, καὶ στιγμὴ ἔστιν.—ὅλως δὲ ζητούσης τῆς σοφίας περὶ τῶν φανερῶν τὸ αἴτιον, τοῦτο μὲν εἰάκαμεν (οὐθὲν γὰρ λέγομεν περὶ τῆς αἰτίας ὅθεν ἡ ἀρχὴ τῆς μεταβολῆς), τὴν δ' οὐσίαν οἰόμενοι λέγειν αὐτῶν ἑτέρας μὲν οὐσίας εἶναί φαμεν, ὅπως δ' ἐκεῖναι τούτων οὐσίαι, διὰ κενῆς λέγομεν· τὸ γὰρ μετέχειν, ὥσπερ καὶ πρότερον εἴπομεν, οὐθέν ἐστιν.

οὐδὲ δὴ ὅπερ ταῖς ἐπιστήμαις ὁρῶμεν ὂν αἴτιον, δι' ὃ καὶ πᾶς νοῦς καὶ πᾶσα φύσις ποιεῖ, οὐδὲ ταύτης τῆς αἰτίας, ἣν φαμεν εἶναι μίαν τῶν ἀρχῶν, οὐθὲν ἅπτεται τὰ εἴδη, ἀλλὰ γέγονε τὰ μαθήματα τοῖς νῦν ἡ φιλοσοφία, φασκόντων ἄλλων χάριν αὐτὰ δεῖν πραγματεύεσθαι. 992b ἔτι δὲ τὴν ὑποκειμένην οὐσίαν ὡς ὕλην μαθηματικωτέραν ἄν τις ὑπολάβοι, καὶ μᾶλλον κατηγορεῖσθαι καὶ διαφορὰν εἶναι τῆς οὐσίας καὶ τῆς ὕλης ἢ ὕλην, οἷον τὸ μέγα καὶ τὸ μικρόν, ὥσπερ καὶ οἱ φυσιολόγοι φασὶ τὸ μανὸν καὶ τὸ πυκνόν, πρώτας τοῦ ὑποκειμένου φάσκοντες εἶναι διαφορὰς ταύτας· ταῦτα γάρ ἐστιν ὑπεροχή τις καὶ ἔλλειψις. περί τε κινήσεως, εἰ μὲν ἔσται ταῦτα κίνησις, δῆλον ὅτι κινήσεται τὰ εἴδη· εἰ δὲ μή, πόθεν ἦλθεν; ὅλη γὰρ ἡ περὶ φύσεως ἀνῄρηται σκέψις.

992b ὅ τε δοκεῖ ῥᾴδιον εἶναι, τὸ δεῖξαι ὅτι ἓν ἅπαντα, οὐ γίγνεται· τῇ γὰρ ἐκθέσει οὐ γίγνεται πάντα ἓν ἀλλ' αὐτό τι ἕν, ἂν διδῷ τις πάντα· καὶ οὐδὲ τοῦτο, εἰ μὴ γένος δώσει τὸ καθόλου εἶναι· τοῦτο δ' ἐν ἐνίοις ἀδύνατον. οὐθένα δ' ἔχει λόγον οὐδὲ τὰ μετὰ τοὺς ἀριθμοὺς μήκη τε καὶ ἐπίπεδα καὶ στερεά, οὔτε ὅπως ἔστιν ἢ ἔσται οὔτε τίνα ἔχει δύναμιν· ταῦτα γὰρ οὔτε εἴδη οἷόν τε εἶναι (οὐ γάρ εἰσιν ἀριθμοί) οὔτε τὰ μεταξύ (μαθηματικὰ γὰρ ἐκεῖνα) οὔτε τὰ φθαρτά, ἀλλὰ πάλιν τέταρτον ἄλλο φαίνεται τοῦτό τι γένος. ὅλως τε τὸ τῶν ὄντων ζητεῖν στοιχεῖα μὴ διελόντας, πολλαχῶς λεγομένων, ἀδύνατον εὑρεῖν, ἄλλως τε καὶ τοῦτον τὸν τρόπον ζητοῦντας ἐξ οἵων ἐστὶ στοιχείων.

ENGLISH

are present in lines? Plato actually fought against this genus as a mere geometrical fiction, but he called the indivisible lines the principle of a line—and he often posited these. Yet these must have some limit; so by the same argument by which there is a line, there is a point too.—In general, though wisdom seeks the cause of evident things, we have neglected this (for we say nothing about the cause from which change begins); and thinking we are stating their substance, we say that there are other substances, but how those are the substances of these, we state emptily. For "participating," as we said before, is nothing.

Nor do the Forms have any bearing on what we see is a cause in the sciences, that because of which all intellect and all nature act—nor on this cause, which we say is one of the principles. Instead, mathematics has become philosophy for people today, though they say it should be pursued for the sake of other things. 992b Further, one might suppose that the substance they posit as underlying, as matter, is too mathematical, and is a predicate and differentia of the substance and the matter rather than matter itself—I mean the great and the small, just as the natural philosophers speak of the rare and the dense, saying that these are the primary differentiae of the underlying subject; for these are a kind of excess and deficiency. And as for motion, if these are motion, clearly the Forms will be moved; but if not, where did motion come from? The whole study of nature has been done away with.

And what seems easy—to show that all things are one—does not come off. For by the method of setting out, not all things become one, but some one itself, if one grants all the premises; and not even this, unless one grants that the universal is a genus, and in some cases that is impossible. Nor is there any account of the things that come after the numbers—lengths, planes and solids—either of how they are or will be, or of what power they have. For these can be neither Forms (since they are not numbers), nor intermediates (for those are the objects of mathematics), nor perishable things; rather, this appears to be yet another, fourth kind. In general, if one seeks the elements of the things that are without distinguishing the many ways in which things are said to be, it is im-

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	possible to find them, especially when one seeks in this way what sort of elements they consist of.[27]
ἐκ τίνων γὰρ τὸ ποιεῖν ἢ πάσχειν ἢ τὸ εὐθύ, οὐκ ἔστι δήπου λαβεῖν, ἀλλ᾽ εἴπερ, τῶν οὐσιῶν μόνον ἐνδέχεται· ὥστε τὸ τῶν ὄντων ἁπάντων τὰ στοιχεῖα ἢ ζητεῖν ἢ οἴεσθαι ἔχειν οὐκ ἀληθές. πῶς δ᾽ ἄν τις καὶ μάθοι τὰ τῶν πάντων στοιχεῖα; δῆλον γὰρ ὡς οὐθὲν οἷόν τε προϋπάρχειν γνωρίζοντα πρότερον. ὥσπερ γὰρ τῷ γεωμετρεῖν μανθάνοντι ἄλλα μὲν ἐνδέχεται προειδέναι, ὧν δὲ ἡ ἐπιστήμη καὶ περὶ ὧν μέλλει μανθάνειν οὐθὲν προγιγνώσκει, οὕτω δὴ καὶ ἐπὶ τῶν ἄλλων, ὥστ᾽ εἴ τις τῶν πάντων ἔστιν ἐπιστήμη, οἵαν δή τινές φασιν, οὐθὲν ἂν προϋπάρχοι γνωρίζων οὗτος.	For surely one cannot grasp what acting or being acted on or the straight consist of; if it is possible at all, it is possible only for substances. So it is not true either to seek the elements of all the things that are, or to think one has them. And how could one even learn the elements of all things? Clearly one could not begin by already knowing anything. For just as someone learning geometry may know other things beforehand, but knows beforehand nothing of what the science is about and what he is going to learn, so it is in other cases. So if there is a science of all things, as some say, the one learning it would begin by knowing nothing beforehand.
καίτοι πᾶσα μάθησις διὰ προγιγνωσκομένων ἢ πάντων ἢ τινῶν ἐστί, καὶ ἡ δι᾽ ἀποδείξεως ⟨καὶ⟩ ἡ δι᾽ ὁρισμῶν (δεῖ γὰρ ἐξ ὧν ὁ ὁρισμὸς προειδέναι καὶ εἶναι γνώριμα)· ὁμοίως δὲ καὶ ἡ δι᾽ ἐπαγωγῆς. ἀλλὰ μὴν εἰ καὶ τυγχάνοι σύμφυτος οὖσα, [993a] θαυμαστὸν πῶς λανθάνομεν ἔχοντες τὴν κρατίστην τῶν ἐπιστημῶν. ἔτι πῶς τις γνωριεῖ ἐκ τίνων ἐστί, καὶ πῶς ἔσται δῆλον; καὶ γὰρ τοῦτ᾽ ἔχει ἀπορίαν· ἀμφισβητήσειε γὰρ ἄν τις ὥσπερ καὶ περὶ ἐνίας συλλαβάς· οἱ μὲν γὰρ τὸ ζα ἐκ τοῦ ς καὶ δ καὶ α φασὶν εἶναι, οἱ δέ τινες ἕτερον φθόγγον φασὶν εἶναι καὶ οὐθένα τῶν γνωρίμων. ἔτι δὲ ὧν ἐστὶν αἴσθησις, ταῦτα πῶς ἄν τις μὴ ἔχων τὴν αἴσθησιν γνοίη;	Yet all learning proceeds through things known beforehand, either all or some of them—both learning through demonstration and learning through definitions (for one must know beforehand the things the definition is composed of, and these must be familiar); and similarly learning through induction. But then, if this science were actually innate, [993a] it is astonishing that we should be unaware of having the most powerful of the sciences. Further, how will one come to know what things consist of, and how will it be made clear? This too involves a puzzle; for one might dispute the matter as with certain syllables. Some say that *za* consists of *s, d* and *a,* while others say it is a distinct sound and none of the familiar ones. Further, how could someone come to know the objects of a sense without having that sense?[28]
993a καίτοι ἔδει, εἴγε πάντων ταὐτὰ στοιχεῖά ἐστιν ἐξ ὧν, ὥσπερ αἱ σύνθετοι φωναί εἰσιν ἐκ τῶν οἰκείων στοιχείων.	Yet one ought to be able to, if the elements of which all things consist are the same, as complex sounds consist of their own elements.

EARLY PHILOSOPHY LISPS

All earlier thinkers sought the four causes, but only vaguely.

GREEK	ENGLISH
ὅτι μὲν οὖν τὰς εἰρημένας ἐν τοῖς φυσικοῖς αἰτίας ζητεῖν ἐοίκασι πάντες, καὶ τούτων ἐκτὸς οὐδεμίαν ἔχοιμεν ἂν εἰπεῖν, δῆλον καὶ ἐκ τῶν πρότερον εἰρημένων· ἀλλ᾽ ἀμυδρῶς ταύτας, καὶ τρόπον μέν τινα πᾶσαι πρότερον εἴρηνται τρόπον δέ τινα οὐδαμῶς. ψελλιζομένῃ γὰρ	It is clear, then, even from what was said earlier, that all seem to seek the causes named in our *Physics*, and that we could not name any cause beyond these. But they seek them dimly; and in one way all of them have been stated before, in another

27 "Setting out" (*ekthesis*): picking out what many things share and treating it as a single separate item.
28 The Greek letter zeta (ζ) was pronounced roughly "zd," so it could be analyzed as a compound sound.

GREEK

ἔοικεν ἡ πρώτη φιλοσοφία περὶ πάντων, ἅτε νέα τε καὶ κατ' ἀρχὰς οὖσα [καὶ τὸ πρῶτον], ἐπεὶ καὶ Ἐμπεδοκλῆς ὀστοῦν τῷ λόγῳ φησὶν εἶναι, τοῦτο δ' ἐστὶ τὸ τί ἦν εἶναι καὶ ἡ οὐσία τοῦ πράγματες. ἀλλὰ μὴν ὁμοίως ἀναγκαῖον καὶ σάρκας καὶ τῶν ἄλλων ἕκαστον εἶναι τὸν λόγον, ἢ μηδὲ ἕν· διὰ τοῦτο γὰρ καὶ σὰρξ καὶ ὀστοῦν ἔσται καὶ τῶν ἄλλων ἕκαστον καὶ οὐ διὰ τὴν ὕλην, ἣν ἐκεῖνος λέγει, πῦρ καὶ γῆν καὶ ὕδωρ καὶ ἀέρα.

ἀλλὰ ταῦτα ἄλλου μὲν λέγοντος συνέφησεν ἂν ἐξ ἀνάγκης, σαφῶς δὲ οὐκ εἴρηκεν. περὶ μὲν οὖν τούτων δεδήλωται καὶ πρότερον· ὅσα δὲ περὶ τῶν αὐτῶν τούτων ἀπορήσειεν ἄν τις, ἐπανέλθωμεν πάλιν· τάχα γὰρ ἂν ἐξ αὐτῶν εὐπορήσαιμέν τι πρὸς τὰς ὕστερον ἀπορίας.

ENGLISH

way not at all. For the earliest philosophy seems to lisp about everything, since it is young and at its beginnings. Even Empedocles says that bone exists by its ratio, and this is the essence and the substance of the thing. But then flesh too, and each of the other things, must likewise be the ratio, or else none of them must be; for it is because of this that flesh and bone and each of the other things will be, and not because of the matter, which he says is fire, earth, water and air.

Had someone else said this, he would necessarily have agreed; but he has not said it clearly. These matters, then, have been made clear already. But let us return to whatever puzzles one might raise about these same questions; for perhaps from them we may find a way through our later puzzles.

Book Little Alpha (II)

Truth, and why causes cannot go on forever.

THE STUDY OF TRUTH

Truth is both hard and easy to grasp, and philosophy is rightly called knowledge of truth.

GREEK	ENGLISH
ἡ περὶ τῆς ἀληθείας θεωρία τῇ μὲν χαλεπὴ τῇ δὲ ῥᾳδία. σημεῖον δὲ τὸ μήτ' ἀξίως μηδένα δύνασθαι θιγεῖν αὐτῆς μήτε πάντας ἀποτυγχάνειν, 993b ἀλλ' ἕκαστον λέγειν τι περὶ τῆς φύσεως, καὶ καθ' ἕνα μὲν ἢ μηθὲν ἢ μικρὸν ἐπιβάλλειν αὐτῇ, ἐκ πάντων δὲ συναθροιζομένων γίγνεσθαί τι μέγεθος· ὥστ' εἴπερ ἔοικεν ἔχειν καθάπερ τυγχάνομεν παροιμιαζόμενοι, τίς ἂν θύρας ἁμάρτοι; ταύτῃ μὲν ἂν εἴη ῥᾳδία, τὸ δ' ὅλον τι ἔχειν καὶ μέρος μὴ δύνασθαι δηλοῖ τὸ χαλεπὸν αὐτῆς. ἴσως δὲ καὶ τῆς χαλεπότητος οὔσης κατὰ δύο τρόπους, οὐκ ἐν τοῖς πράγμασιν ἀλλ' ἐν ἡμῖν τὸ αἴτιον αὐτῆς· ὥσπερ γὰρ τὰ τῶν νυκτερίδων ὄμματα πρὸς τὸ φέγγος ἔχει τὸ μεθ' ἡμέραν, οὕτω καὶ τῆς ἡμετέρας ψυχῆς ὁ νοῦς πρὸς τὰ τῇ φύσει φανερώτατα πάντων.	The study of truth is in one way hard and in another easy. A sign of this is that no one can grasp it adequately, yet not everyone misses it; 993b each says something about the nature of things, and while individually they contribute little or nothing to it, from all of them put together a considerable amount results. So if it seems to be as the proverb we like to quote has it—"who could miss the door?"—in this respect it would be easy; but that we can have some grasp of the whole and yet be unable to grasp the part shows its difficulty. And perhaps, since difficulty is of two kinds, its cause lies not in the things but in us. For as the eyes of bats are to the light of day, so is the intellect in our soul to the things that are by nature most evident of all.[1]
993b οὐ μόνον δὲ χάριν ἔχειν δίκαιον τούτοις ὧν ἄν τις κοινώσαιτο ταῖς δόξαις, ἀλλὰ καὶ τοῖς ἐπιπολαιότερον ἀποφηναμένοις· καὶ γὰρ οὗτοι συνεβάλοντό τι· τὴν γὰρ ἕξιν προήσκησαν ἡμῶν· εἰ μὲν γὰρ Τιμόθεος μὴ ἐγένετο, πολλὴν ἂν μελοποιίαν οὐκ εἴχομεν· εἰ δὲ μὴ Φρῦνις, Τιμόθεος οὐκ ἂν ἐγένετο. τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν περὶ τῆς ἀληθείας ἀποφηναμένων· παρὰ μὲν γὰρ ἐνίων παρειλήφαμέν τινας δόξας, οἱ δὲ τοῦ γενέσθαι τούτους αἴτιοι γεγόνασιν. ὀρθῶς δ' ἔχει καὶ τὸ καλεῖσθαι τὴν φιλοσοφίαν ἐπιστήμην τῆς ἀληθείας. θεωρητικῆς μὲν γὰρ τέλος ἀλήθεια πρακτικῆς δ' ἔργον· καὶ γὰρ ἂν τὸ πῶς ἔχει σκοπῶσιν, οὐ τὸ ἀΐδιον ἀλλ' ὃ πρός τι καὶ νῦν θεωροῦσιν οἱ πρακτικοί.	It is just to be grateful not only to those whose opinions we might share, but also to those who expressed more superficial views; for these too contributed something, by training our capacity beforehand. If there had been no Timotheus, we would lack much of our lyric music; but if there had been no Phrynis, there would have been no Timotheus. It is the same with those who have expressed views about the truth: from some we have inherited certain opinions, while others were responsible for these thinkers' coming to be. It is right, too, that philosophy should be called knowledge of the truth. For the end of theoretical knowledge is truth, while that of practical knowledge is action; for even if practical people examine how things stand, they study not what is eternal but what is relative to something and to the present.[2]
οὐκ ἴσμεν δὲ τὸ ἀληθὲς ἄνευ τῆς αἰτίας· ἕκαστον δὲ μάλιστα αὐτὸ τῶν ἄλλων καθ' ὃ καὶ τοῖς ἄλλοις ὑπάρχει	We do not know the truth without its cause. And a thing has a quality to the highest degree when it is

1 This begins Book α ("little alpha"), a short book placed second in the traditional order.
2 Timotheus of Miletus and his predecessor Phrynis of Mytilene were innovative composers of the fifth century BC.

GREEK	ENGLISH
τὸ συνώνυμον (οἷον τὸ πῦρ θερμότατον· καὶ γὰρ τοῖς ἄλλοις τὸ αἴτιον τοῦτο τῆς θερμότητος)· ὥστε καὶ ἀληθέστατον τὸ τοῖς ὑστέροις αἴτιον τοῦ ἀληθέσιν εἶναι. διὸ τὰς τῶν ἀεὶ ὄντων ἀρχὰς ἀναγκαῖον ἀεὶ εἶναι ἀληθεστάτας (οὐ γάρ ποτε ἀληθεῖς, οὐδ' ἐκείναις αἴτιόν τί ἐστι τοῦ εἶναι, ἀλλ' ἐκεῖναι τοῖς ἄλλοις), ὥσθ' ἕκαστον ὡς ἔχει τοῦ εἶναι, οὕτω καὶ τῆς ἀληθείας.	that in virtue of which the same quality belongs to other things too (fire, for instance, is hottest, since it is the cause of heat in the other things). So that too is truest which is the cause of the truth of the things that depend on it. That is why the principles of things that always are must always be truest; for they are not true only at some times, nor is anything the cause of their being, but they are the cause for the other things. So as each thing stands with respect to being, so it stands with respect to truth.

CAUSES CANNOT GO ON FOREVER

Chains of material, moving, final and formal causes must each have a first term.

GREEK	ENGLISH
994a ἀλλὰ μὴν ὅτι γ' ἔστιν ἀρχή τις καὶ οὐκ ἄπειρα τὰ αἴτια τῶν ὄντων οὔτ' εἰς εὐθυωρίαν οὔτε κατ' εἶδος, δῆλον. οὔτε γὰρ ὡς ἐξ ὕλης τόδ' ἐκ τοῦδε δυνατὸν ἰέναι εἰς ἄπειρον (οἷον σάρκα μὲν ἐκ γῆς, γῆν δ' ἐξ ἀέρος, ἀέρα δ' ἐκ πυρός, καὶ τοῦτο μὴ ἵστασθαι), οὔτε ὅθεν ἡ ἀρχὴ τῆς κινήσεως (οἷον τὸν μὲν ἄνθρωπον ὑπὸ τοῦ ἀέρος κινηθῆναι, τοῦτον δ' ὑπὸ τοῦ ἡλίου, τὸν δὲ ἥλιον ὑπὸ τοῦ νείκους, καὶ τούτου μηδὲν εἶναι πέρας)· ὁμοίως δὲ οὐδὲ τὸ οὗ ἕνεκα εἰς ἄπειρον οἷόν τε ἰέναι, βάδισιν μὲν ὑγιείας ἕνεκα, ταύτην δ' εὐδαιμονίας, τὴν δ' εὐδαιμονίαν ἄλλου, καὶ οὕτως ἀεὶ ἄλλο ἄλλου ἕνεκεν εἶναι· καὶ ἐπὶ τοῦ τί ἦν εἶναι δ' ὡσαύτως.	But clearly there is a principle, and the causes of things are not infinite, either in a straight series or in kind. Neither can one thing come from another, as from matter, to infinity (flesh from earth, say, earth from air, air from fire, and this never stopping), nor can the source from which motion begins (a human being moved by the air, this by the sun, the sun by Strife, and no limit to this). Likewise, that for the sake of which cannot go on to infinity—walking for the sake of health, health for the sake of happiness, happiness for the sake of something else, and so always one thing for the sake of another. And the same holds for the essence.[3]
τῶν γὰρ μέσων, ὧν ἐστί τι ἔσχατον καὶ πρότερον, ἀναγκαῖον εἶναι τὸ πρότερον αἴτιον τῶν μετ' αὐτό. εἰ γὰρ εἰπεῖν ἡμᾶς δέοι τί τῶν τριῶν αἴτιον, τὸ πρῶτον ἐροῦμεν· οὐ γὰρ δὴ τό γ' ἔσχατον, οὐδενὸς γὰρ τὸ τελευταῖον· ἀλλὰ μὴν οὐδὲ τὸ μέσον, ἑνὸς γάρ (οὐθὲν δὲ διαφέρει ἓν ἢ πλείω εἶναι, οὐδ' ἄπειρα ἢ πεπερασμένα). τῶν δ' ἀπείρων τοῦτον τὸν τρόπον καὶ ὅλως τοῦ ἀπείρου πάντα τὰ μόρια μέσα ὁμοίως μέχρι τοῦ νῦν· ὥστ' εἴπερ μηδέν ἐστι πρῶτον, ὅλως αἴτιον οὐδέν ἐστιν.—ἀλλὰ μὴν οὐδ' ἐπὶ τὸ κάτω οἷόν τε εἰς ἄπειρον ἰέναι, τοῦ ἄνω ἔχοντος ἀρχήν, ὥστ' ἐκ πυρὸς μὲν ὕδωρ, ἐκ δὲ τούτου γῆν, καὶ οὕτως ἀεὶ ἄλλο τι γίγνεσθαι γένος.	For in the case of intermediate terms, where there is something last and something before it, the earlier term must be the cause of those after it. If we had to say which of the three is the cause, we would say the first: certainly not the last, since what comes at the end is the cause of nothing; nor the middle either, since it is the cause of only one thing (and it makes no difference whether the middle is one or more, or whether they are infinite or finite). But in series that are infinite in this way, and in the infinite generally, all the parts down to the present one are alike intermediates; so if there is nothing first, there is no cause at all.—Nor, again, can the series go on to infinity downward, when it has a starting point above, so that water comes from fire, earth from water, and so on, with some other kind always coming to be.

3 "Happiness" renders *eudaimonia*: flourishing, a whole life going well.

GREEK	ENGLISH
διχῶς γὰρ γίγνεται τόδε ἐκ τοῦδε—μὴ ὡς τόδε λέγεται μετὰ τόδε, οἷον ἐξ Ἰσθμίων Ὀλύμπια, ἀλλ' ἢ ὡς ἐκ παιδὸς ἀνὴρ μεταβάλλοντος ἢ ὡς ἐξ ὕδατος ἀήρ. ὡς μὲν οὖν ἐκ παιδὸς ἄνδρα γίγνεσθαί φαμεν, ὡς ἐκ τοῦ γιγνομένου τὸ γεγονὸς ἢ ἐκ τοῦ ἐπιτελουμένου τὸ τετελεσμένον (ἀεὶ γάρ ἐστι μεταξύ, ὥσπερ τοῦ εἶναι καὶ μὴ εἶναι γένεσις, οὕτω καὶ τὸ γιγνόμενον τοῦ ὄντος καὶ μὴ ὄντος· ἔστι γὰρ ὁ μανθάνων γιγνόμενος ἐπιστήμων, καὶ τοῦτ' ἐστὶν ὃ λέγεται, ὅτι γίγνεται ἐκ μανθάνοντος ἐπιστήμων)· τὸ δ' ὡς ἐξ ἀέρος ὕδωρ, φθειρομένου θατέρου.	For one thing comes to be "from" another in two ways—not in the sense of "after," as the Olympic games come "from" the Isthmian, but either as a man comes from a boy when the boy changes, or as air comes from water. We say a man comes to be from a boy in the way that what has come to be comes from what is coming to be, or what has been completed from what is being completed (for there is always something in between: just as coming-to-be is between being and not being, so what is coming to be is between what is and what is not; the learner is someone becoming a knower, and that is what we mean when we say a knower comes to be from a learner). But water comes from air in the other way, by the destruction of the one.[4]
διὸ ἐκεῖνα μὲν οὐκ ἀνακάμπτει εἰς ἄλληλα, [994b] οὐδὲ γίγνεται ἐξ ἀνδρὸς παῖς (οὐ γὰρ γίγνεται ἐκ τῆς γενέσεως τὸ γιγνόμενον ἀλλ' ⟨ὃ⟩ ἔστι μετὰ τὴν γένεσιν· οὕτω γὰρ καὶ ἡμέρα ἐκ τοῦ πρωΐ, ὅτι μετὰ τοῦτο· διὸ οὐδὲ τὸ πρωῒ ἐξ ἡμέρας)· θάτερα δὲ ἀνακάμπτει. ἀμφοτέρως δὲ ἀδύνατον εἰς ἄπειρον ἰέναι· τῶν μὲν γὰρ ὄντων μεταξὺ ἀνάγκη τέλος εἶναι, τὰ δ' εἰς ἄλληλα ἀνακάμπτει· ἡ γὰρ θατέρου φθορὰ θατέρου ἐστὶ γένεσις.—ἅμα δὲ καὶ ἀδύνατον τὸ πρῶτον ἀΐδιον ὂν φθαρῆναι· ἐπεὶ γὰρ οὐκ ἄπειρος ἡ γένεσις ἐπὶ τὸ ἄνω, ἀνάγκη ἐξ οὗ φθαρέντος πρώτου τι ἐγένετο μὴ ἀΐδιον εἶναι.	That is why changes of the first kind do not turn back into each other: [994b] a boy does not come to be from a man (for what comes to be does not come from the coming-to-be, but is what exists after the coming-to-be; so too day comes "from" dawn in the sense that it comes after it, which is why dawn does not come from day); but changes of the other kind do turn back. In neither way is it possible to go on to infinity. In the first case the intermediates must have an end; in the second the terms turn back into each other, for the destruction of one is the generation of the other.—At the same time, it is impossible for the first cause, being eternal, to be destroyed. For since coming-to-be is not infinite in the upward direction, the first thing whose destruction brought something into being cannot be eternal.
994b ἔτι δὲ τὸ οὗ ἕνεκα τέλος, τοιοῦτον δὲ ὃ μὴ ἄλλου ἕνεκα ἀλλὰ τἆλλα ἐκείνου, ὥστ' εἰ μὲν ἔσται τοιοῦτόν τι ἔσχατον, οὐκ ἔσται ἄπειρον, εἰ δὲ μηθὲν τοιοῦτον, οὐκ ἔσται τὸ οὗ ἕνεκα, ἀλλ' οἱ τὸ ἄπειρον ποιοῦντες λανθάνουσιν ἐξαιροῦντες τὴν τοῦ ἀγαθοῦ φύσιν (καίτοι οὐθεὶς ἂν ἐγχειρήσειεν οὐδὲν πράττειν μὴ μέλλων ἐπὶ πέρας ἥξειν)· οὐδ' ἂν εἴη νοῦς ἐν τοῖς οὖσιν· ἕνεκα γάρ τινος ἀεὶ πράττει ὅ γε νοῦν ἔχων, τοῦτο δέ ἐστι πέρας· τὸ γὰρ τέλος πέρας ἐστίν.	Further, that for the sake of which is an end, and an end is the sort of thing that is not for the sake of something else, but other things are for its sake. So if there is to be a last term of this kind, the series will not be infinite; and if there is no such term, there will be no that for the sake of which. Those who make the series infinite don't notice that they are doing away with the nature of the good (and yet no one would set about doing anything if he were not going to reach a limit). Nor would there be intellect among the things that are; for anyone who has intellect always acts for the sake of something, and this is a limit—the end is a limit.

4 The Isthmian and Olympic games were two of the great Panhellenic athletic festivals; in the festival calendar the one followed the other.

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ἀλλὰ μὴν οὐδὲ τὸ τί ἦν εἶναι ἐνδέχεται ἀνάγεσθαι εἰς ἄλλον ὁρισμὸν πλεονάζοντα τῷ λόγῳ· ἀεί τε γὰρ ἔστιν ὁ ἔμπροσθεν μᾶλλον, ὁ δ' ὕστερος οὐκ ἔστιν, οὗ δὲ τὸ πρῶτον μὴ ἔστιν, οὐδὲ τὸ ἐχόμενον· ἔτι τὸ ἐπίστασθαι ἀναιροῦσιν οἱ οὕτως λέγοντες, οὐ γὰρ οἷόν τε εἰδέναι πρὶν εἰς τὰ ἄτομα ἐλθεῖν· καὶ τὸ γιγνώσκειν οὐκ ἔστιν, τὰ γὰρ οὕτως ἄπειρα πῶς ἐνδέχεται νοεῖν; οὐ γὰρ ὅμοιον ἐπὶ τῆς γραμμῆς, ἢ κατὰ τὰς διαιρέσεις μὲν οὐχ ἵσταται, νοῆσαι δ' οὐκ ἔστι μὴ στήσαντα (διόπερ οὐκ ἀριθμήσει τὰς τομὰς ὁ τὴν ἄπειρον διεξιών), ἀλλὰ καὶ τὴν ὅλην οὐ κινουμένῳ νοεῖν ἀνάγκη.

καὶ ἀπείρῳ οὐδενὶ ἔστιν εἶναι· εἰ δὲ μή, οὐκ ἄπειρόν γ' ἐστὶ τὸ ἀπείρῳ εἶναι.—ἀλλὰ μὴν καὶ εἰ ἄπειρά γ' ἦσαν πλήθει τὰ εἴδη τῶν αἰτίων, οὐκ ἂν ἦν οὐδ' οὕτω τὸ γιγνώσκειν· τότε γὰρ εἰδέναι οἰόμεθα ὅταν τὰ αἴτια γνωρίσωμεν· τὸ δ' ἄπειρον κατὰ τὴν πρόσθεσιν οὐκ ἔστιν ἐν πεπερασμένῳ διεξελθεῖν.

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Nor can the essence be traced back to another definition, fuller in its wording. The earlier definition is always more of a definition, and the later one is not; and where the first is not what it should be, neither is what follows it. Further, those who talk this way do away with scientific knowledge, since it is impossible to know anything until one arrives at what cannot be further divided. And knowing becomes impossible too: how can one think of things that are infinite in this way? It is not like the line, whose divisions never come to a stop, but which one cannot think of without stopping (which is why someone running through the infinitely divisible line will not be counting its sections); even the whole line must be thought of by something that is not moving along it.

And nothing can have infinite being; or if it can, at least what it is to be infinite is not itself infinite.—Again, even if the kinds of causes were infinite in number, knowing would still be impossible. For we think we know when we have become acquainted with the causes, and what is infinite by addition cannot be gone through in a finite time.

METHODS SUITED TO THE SUBJECT

Habit shapes what listeners accept, and mathematical precision does not suit every subject.

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αἱ δ' ἀκροάσεις κατὰ τὰ ἔθη συμβαίνουσιν· ὡς γὰρ εἰώθαμεν οὕτως ἀξιοῦμεν λέγεσθαι, [995a] καὶ τὰ παρὰ ταῦτα οὐχ ὅμοια φαίνεται ἀλλὰ διὰ τὴν ἀσυνήθειαν ἀγνωστότερα καὶ ξενικώτερα· τὸ γὰρ σύνηθες γνώριμον. ἡλίκην δὲ ἰσχὺν ἔχει τὸ σύνηθες οἱ νόμοι δηλοῦσιν, ἐν οἷς τὰ μυθώδη καὶ παιδαριώδη μεῖζον ἰσχύει τοῦ γινώσκειν περὶ αὐτῶν διὰ τὸ ἔθος. οἱ μὲν οὖν ἐὰν μὴ μαθηματικῶς λέγῃ τις οὐκ ἀποδέχονται τῶν λεγόντων, οἱ δ' ἂν μὴ παραδειγματικῶς, οἱ δὲ μάρτυρα ἀξιοῦσιν ἐπάγεσθαι ποιητήν. καὶ οἱ μὲν πάντα ἀκριβῶς, τοὺς δὲ λυπεῖ τὸ ἀκριβὲς ἢ διὰ τὸ μὴ δύνασθαι συνείρειν ἢ διὰ τὴν μικρολογίαν· ἔχει γάρ τι τὸ ἀκριβὲς τοιοῦτον, ὥστε, καθάπερ ἐπὶ τῶν συμβολαίων, καὶ ἐπὶ τῶν λόγων ἀνελεύθερον εἶναί τισι δοκεῖ.

995a διὸ δεῖ πεπαιδεῦσθαι πῶς ἕκαστα ἀποδεκτέον, ὡς ἄτοπον ἅμα ζητεῖν ἐπιστήμην καὶ τρόπον ἐπιστήμης· ἔστι δ' οὐδὲ

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How a lecture goes over depends on the listeners' habits. We expect things to be said the way we are used to, [995a] and what departs from this seems not the same but less intelligible and more foreign, because it is unfamiliar; for what is habitual is intelligible. How much power habit has is shown by the laws, in which mythical and childish elements carry more weight, through habit, than knowing about them does. Some people won't accept what a speaker says unless he speaks mathematically, others unless he gives examples, while others expect him to call a poet as a witness. And some want everything done precisely, while others are annoyed by precision, either because they can't follow the chain of reasoning or because it seems like hair-splitting. For precision does have something of this about it, so that, as in business dealings, in arguments too some people think it petty.

So one must already have been trained in how to take each kind of argument, since it is absurd to

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θάτερον ῥᾴδιον λαβεῖν. τὴν δ’ ἀκριβολογίαν τὴν μαθηματικὴν οὐκ ἐν ἅπασιν ἀπαιτητέον, ἀλλ’ ἐν τοῖς μὴ ἔχουσιν ὕλην. διόπερ οὐ φυσικὸς ὁ τρόπος· ἅπασα γὰρ ἴσως ἡ φύσις ἔχει ὕλην. διὸ σκεπτέον πρῶτον τί ἐστιν ἡ φύσις· οὕτω γὰρ καὶ περὶ τίνων ἡ φυσικὴ δῆλον ἔσται [καὶ εἰ μιᾶς ἐπιστήμης ἢ πλειόνων τὰ αἴτια καὶ τὰς ἀρχὰς θεωρῆσαί ἐστιν].	be looking for knowledge and at the same time for the method of knowledge; and neither is easy to get. The mathematician’s exactness is not to be demanded in all cases, but only for things that have no matter. That is why this method is not suited to natural science, since presumably all of nature has matter. So we must first examine what nature is; in that way it will also become clear what natural science is about.

Book Beta (III)

The puzzles of first philosophy.

WHY BEGIN WITH PUZZLES

Inquiry must first work through the puzzles; Aristotle lists those of first philosophy.

GREEK	ENGLISH
ἀνάγκη πρὸς τὴν ἐπιζητουμένην ἐπιστήμην ἐπελθεῖν ἡμᾶς πρῶτον περὶ ὧν ἀπορῆσαι δεῖ πρῶτον· ταῦτα δ' ἐστὶν ὅσα τε περὶ αὐτῶν ἄλλως ὑπειλήφασί τινες, κἂν εἴ τι χωρὶς τούτων τυγχάνει παρεωραμένον. ἔστι δὲ τοῖς εὐπορῆσαι βουλομένοις προὔργου τὸ διαπορῆσαι καλῶς· ἡ γὰρ ὕστερον εὐπορία λύσις τῶν πρότερον ἀπορουμένων ἐστί, λύειν δ' οὐκ ἔστιν ἀγνοοῦντας τὸν δεσμόν, ἀλλ' ἡ τῆς διανοίας ἀπορία δηλοῖ τοῦτο περὶ τοῦ πράγματος· ᾗ γὰρ ἀπορεῖ, ταύτῃ παραπλήσιον πέπονθε τοῖς δεδεμένοις· ἀδύνατον γὰρ ἀμφοτέρως προελθεῖν εἰς τὸ πρόσθεν.	With a view to the science we are seeking, we must first go over the things we need to be puzzled about first. These are the views that some people have held about these matters differently from us, and anything besides these that happens to have been overlooked. For those who want to find a way through, it pays to work through the puzzles well; for the way through that comes later is the resolution of what was puzzling before, and one cannot untie a knot one is unaware of. The puzzlement of our thinking reveals this knot in the subject matter: insofar as thought is puzzled, it is in much the same state as someone tied up, since in either case it is impossible to go forward.
διὸ δεῖ τὰς δυσχερείας τεθεωρηκέναι πάσας πρότερον, τούτων τε χάριν καὶ διὰ τὸ τοὺς ζητοῦντας ἄνευ τοῦ διαπορῆσαι πρῶτον ὁμοίους εἶναι τοῖς ποῖ δεῖ βαδίζειν ἀγνοοῦσι, καὶ πρὸς τούτοις οὐδ' εἴ ποτε τὸ ζητούμενον εὕρηκεν ἢ μὴ γιγνώσκειν· [995b] τὸ γὰρ τέλος τούτῳ μὲν οὐ δῆλον τῷ δὲ προηπορηκότι δῆλον.	That is why one must have surveyed all the difficulties beforehand, both for these reasons and because people who inquire without first working through the puzzles are like those who don't know where they are supposed to be walking. Besides, such a person does not even know whether he has found what he is looking for or not; [995b] for the end is not clear to him, whereas to someone who has first worked through the puzzles it is clear.
995b ἔτι δὲ βέλτιον ἀνάγκη ἔχειν πρὸς τὸ κρῖναι τὸν ὥσπερ ἀντιδίκων καὶ τῶν ἀμφισβητούντων λόγων ἀκηκοότα πάντων.—ἔστι δ' ἀπορία πρώτη μὲν περὶ ὧν ἐν τοῖς πεφροιμιασμένοις διηπορήσαμεν, πότερον μιᾶς ἢ πολλῶν ἐπιστημῶν θεωρῆσαι τὰς αἰτίας· καὶ πότερον τὰς τῆς οὐσίας ἀρχὰς τὰς πρώτας ἐστὶ τῆς ἐπιστήμης ἰδεῖν μόνον ἢ καὶ περὶ τῶν ἀρχῶν ἐξ ὧν δεικνύουσι πάντες, οἷον πότερον ἐνδέχεται ταὐτὸ καὶ ἓν ἅμα φάναι καὶ ἀποφάναι ἢ οὔ, καὶ περὶ τῶν ἄλλων τῶν τοιούτων· εἴ τ' ἐστι περὶ τὴν οὐσίαν, πότερον μία περὶ πάσας ἢ πλείονές εἰσι, κἂν εἰ πλείονες πότερον ἅπασαι συγγενεῖς ἢ τὰς μὲν σοφίας τὰς δὲ ἄλλο τι λεκτέον αὐτῶν.	Further, someone who has heard all the arguments, like the opposing parties in a lawsuit, is bound to be in a better position to judge.—The first puzzle concerns the questions we raised in our introductory remarks: whether it belongs to one science or to many to study the causes. And whether it belongs to this science to consider only the first principles of substance, or also the principles from which everyone conducts proofs—for instance, whether or not it is possible to assert and deny one and the same thing at the same time—and other such principles. And if the science is concerned with substance, whether there is one science of all substances or several; and if several, whether they are all akin, or whether some of

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καὶ τοῦτο δ' αὐτὸ τῶν ἀναγκαίων ἐστὶ ζητῆσαι, πότερον τὰς αἰσθητὰς οὐσίας εἶναι μόνον φατέον ἢ καὶ παρὰ ταύτας ἄλλας, καὶ πότερον μοναχῶς ἢ πλείονα γένη τῶν οὐσιῶν, οἷον οἱ ποιοῦντες τά τε εἴδη καὶ τὰ μαθηματικὰ μεταξὺ τούτων τε καὶ τῶν αἰσθητῶν.

περί τε τούτων οὖν, καθάπερ φαμέν, ἐπισκεπτέον, καὶ πότερον περὶ τὰς οὐσίας ἡ θεωρία μόνον ἐστὶν ἢ καὶ περὶ τὰ συμβεβηκότα καθ' αὑτὰ ταῖς οὐσίαις, πρὸς δὲ τούτοις περὶ ταὐτοῦ καὶ ἑτέρου καὶ ὁμοίου καὶ ἀνομοίου καὶ ἐναντιότητος, καὶ περὶ προτέρου καὶ ὑστέρου καὶ τῶν ἄλλων ἁπάντων τῶν τοιούτων περὶ ὅσων οἱ διαλεκτικοὶ πειρῶνται σκοπεῖν ἐκ τῶν ἐνδόξων μόνων ποιούμενοι τὴν σκέψιν, τίνος ἐστὶ θεωρῆσαι περὶ πάντων· ἔτι δὲ τούτοις αὐτοῖς ὅσα καθ' αὑτὰ συμβέβηκεν, καὶ μὴ μόνον τί ἐστι τούτων ἕκαστον ἀλλὰ καὶ ἆρα ἓν ἑνὶ ἐναντίον· καὶ πότερον αἱ ἀρχαὶ καὶ τὰ στοιχεῖα τὰ γένη ἐστὶν ἢ εἰς ἃ διαιρεῖται ἐνυπάρχοντα ἕκαστον· καὶ εἰ τὰ γένη, πότερον ὅσα ἐπὶ τοῖς ἀτόμοις λέγεται τελευταῖα ἢ τὰ πρῶτα, οἷον πότερον ζῷον ἢ ἄνθρωπος ἀρχή τε καὶ μᾶλλον ἔστι παρὰ τὸ καθ' ἕκαστον.

μάλιστα δὲ ζητητέον καὶ πραγματευτέον πότερον ἔστι τι παρὰ τὴν ὕλην αἴτιον καθ' αὑτὸ ἢ οὔ, καὶ τοῦτο χωριστὸν ἢ οὔ, καὶ πότερον ἓν ἢ πλείω τὸν ἀριθμόν, καὶ πότερον ἔστι τι παρὰ τὸ σύνολον (λέγω δὲ τὸ σύνολον, ὅταν κατηγορηθῇ τι τῆς ὕλης) ἢ οὐθέν, ἢ τῶν μὲν τῶν δ' οὔ, καὶ ποῖα τοιαῦτα τῶν ὄντων. [996a] ἔτι αἱ ἀρχαὶ πότερον ἀριθμῷ ἢ εἴδει ὡρισμέναι, καὶ αἱ ἐν τοῖς λόγοις καὶ αἱ ἐν τῷ ὑποκειμένῳ; καὶ πότερον τῶν φθαρτῶν καὶ ἀφθάρτων αἱ αὐταὶ ἢ ἕτεραι, καὶ πότερον ἄφθαρτοι πᾶσαι ἢ τῶν φθαρτῶν φθαρταί; ἔτι δὲ τὸ πάντων χαλεπώτατον καὶ πλείστην ἀπορίαν ἔχον, πότερον τὸ ἓν καὶ τὸ ὄν, καθάπερ οἱ Πυθαγόρειοι καὶ Πλάτων ἔλεγεν, οὐχ ἕτερόν τί ἐστιν ἀλλ' οὐσία τῶν ὄντων;

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them should be called wisdom and the others something else.

And this too is one of the things we must investigate: whether we should say that only perceptible substances exist, or others besides these; and whether there is only one kind of substance or several, as those hold who posit both the Forms and the mathematical objects, between the Forms and perceptible things.

These, then, as we say, are questions to be examined. So is whether our study concerns only substances or also the attributes that belong to substances in their own right. In addition, there are same and other, like and unlike, and contrariety, and prior and posterior, and all the other such things that the dialecticians try to examine, conducting their inquiry from reputable opinions alone: whose task is it to study all of them? Further, we must examine the attributes that belong to these very things in their own right—not only what each of them is, but also whether one thing has one contrary. And whether the principles and elements are the genera, or the constituents present in each thing into which it is divided; and if the genera, whether they are the ones predicated last of the individuals or the first ones—for instance, whether animal or human being is a principle and exists more fully apart from the particular.

Above all, we must inquire and work at the question whether there is or is not some cause in its own right besides matter, and whether this is separable or not, and whether it is one or more in number; and whether there is something besides the composite (by "the composite" I mean when something is predicated of the matter) or nothing, or whether there is in some cases and not in others, and what sort of beings these are. [996a] Further, whether the principles are limited in number or in kind, both those in the accounts and those in the underlying subject; and whether the principles of perishable and imperishable things are the same or different; and whether they are all imperishable, or those of perishable things are perishable. Further—the hardest question of all and the one that holds the most puzzlement—whether the one and being, as the Pythagoreans and Plato said, are not something else but are the substance of the things that are.

GREEK		ENGLISH
996a	ἢ οὔ, ἀλλ' ἕτερόν τι τὸ ὑποκείμενον, ὥσπερ Ἐμπεδοκλῆς φησὶ φιλίαν ἄλλος δέ τις πῦρ ὁ δὲ ὕδωρ ἢ ἀέρα· καὶ πότερον αἱ ἀρχαὶ καθόλου εἰσὶν ἢ ὡς τὰ καθ' ἕκαστα τῶν πραγμάτων, καὶ δυνάμει ἢ ἐνεργείᾳ· ἔτι πότερον ἄλλως ἢ κατὰ κίνησιν· καὶ γὰρ ταῦτα ἀπορίαν ἂν παράσχοι πολλήν. πρὸς δὲ τούτοις πότερον οἱ ἀριθμοὶ καὶ τὰ μήκη καὶ τὰ σχήματα καὶ αἱ στιγμαὶ οὐσίαι τινές εἰσιν ἢ οὔ, κἂν εἰ οὐσίαι πότερον κεχωρισμέναι τῶν αἰσθητῶν ἢ ἐνυπάρχουσαι ἐν τούτοις; περὶ γὰρ τούτων ἁπάντων οὐ μόνον χαλεπὸν τὸ εὐπορῆσαι τῆς ἀληθείας ἀλλ' οὐδὲ τὸ διαπορῆσαι τῷ λόγῳ ῥᾴδιον καλῶς.	Or not, but the underlying subject is something else—Love, as Empedocles says, while another says fire, and another water or air. And whether the principles are universal or like particular things; and whether they exist potentially or actually; further, whether potentially or actually in some other sense than with respect to motion—for these questions too would present much puzzlement. In addition, whether numbers, lengths, figures, and points are substances of some kind or not; and if they are substances, whether they are separate from perceptible things or present in them. About all of these, it is not only hard to find a way through to the truth; it is not easy even to work through the puzzles well in argument.

ONE SCIENCE OR MANY?

Puzzles about whether one science studies all the causes, the axioms, all substances and their attributes.

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πρῶτον μὲν οὖν περὶ ὧν πρῶτον εἴπομεν, πότερον μιᾶς ἢ πλειόνων ἐστὶν ἐπιστημῶν θεωρῆσαι πάντα τὰ γένη τῶν αἰτίων. μιᾶς μὲν γὰρ ἐπιστήμης πῶς ἂν εἴη μὴ ἐναντίας οὔσας τὰς ἀρχὰς γνωρίζειν; ἔτι δὲ πολλοῖς τῶν ὄντων οὐχ ὑπάρχουσι πᾶσαι· τίνα γὰρ τρόπον οἷόν τε κινήσεως ἀρχὴν εἶναι τοῖς ἀκινήτοις ἢ τὴν τἀγαθοῦ φύσιν, εἴπερ ἅπαν ὃ ἂν ᾖ ἀγαθὸν καθ' αὑτὸ καὶ διὰ τὴν αὑτοῦ φύσιν τέλος ἐστὶν καὶ οὕτως αἴτιον ὅτι ἐκείνου ἕνεκα καὶ γίγνεται καὶ ἔστι τἆλλα, τὸ δὲ τέλος καὶ τὸ οὗ ἕνεκα πράξεώς τινός ἐστι τέλος, αἱ δὲ πράξεις πᾶσαι μετὰ κινήσεως; ὥστ' ἐν τοῖς ἀκινήτοις οὐκ ἂν ἐνδέχοιτο ταύτην εἶναι τὴν ἀρχὴν οὐδ' εἶναί τι αὐτοαγαθόν.	First, then, about the question we mentioned first: whether it belongs to one science or to several to study all the kinds of causes. How could it belong to one science to know the principles, when they are not contraries? Further, many beings do not have all of them. In what way can there be a principle of motion, or the nature of the good, in unmovable things—if everything that is good in its own right and by its own nature is an end, and is a cause in the sense that for its sake the other things both come to be and are; and if the end, that for the sake of which, is the end of some action, and all actions involve motion? So in unmovable things there could not be this principle, nor could there be any good-itself.
διὸ καὶ ἐν τοῖς μαθήμασιν οὐθὲν δείκνυται διὰ ταύτης τῆς αἰτίας, οὐδ' ἔστιν ἀπόδειξις οὐδεμία διότι βέλτιον ἢ χεῖρον, ἀλλ' οὐδὲ τὸ παράπαν μέμνηται οὐθεὶς οὐθενὸς τῶν τοιούτων, ὥστε διὰ ταῦτα τῶν σοφιστῶν τινὲς οἷον Ἀρίστιππος προεπηλάκιζεν αὐτάς· ἐν μὲν γὰρ ταῖς ἄλλαις τέχναις, καὶ ταῖς βαναύσοις, οἷον ἐν τεκτονικῇ καὶ σκυτικῇ, διότι βέλτιον ἢ χεῖρον λέγεσθαι πάντα, τὰς δὲ μαθηματικὰς οὐθένα ποιεῖσθαι λόγον περὶ ἀγαθῶν καὶ κακῶν. [996b] —ἀλλὰ μὴν εἴ γε πλείους ἐπιστῆμαι τῶν αἰτίων εἰσὶ καὶ ἑτέρα ἑτέρας ἀρχῆς, τίνα τούτων φατέον εἶναι τὴν ζητουμένην, ἢ τίνα μάλιστα τοῦ πράγματος τοῦ ζητουμένου ἐπιστήμονα τῶν ἐχόντων αὐτάς;	That is why in mathematics nothing is proved through this kind of cause, nor is there any demonstration on the grounds that something is better or worse; in fact no one even mentions anything of the kind. For this reason some of the sophists, such as Aristippus, used to scorn mathematics: in the other crafts, even the manual ones such as carpentry and shoemaking, everything is explained by its being better or worse, whereas the mathematical sciences take no account of goods and evils. [996b] —But if there are several sciences of the causes, a different one for each principle, which of these should we say is the one we are seeking? Or which of the people who possess

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them has the most scientific knowledge of the matter we are seeking?[1]

996b ἐνδέχεται γὰρ τῷ αὐτῷ πάντας τοὺς τρόπους τοὺς τῶν αἰτίων ὑπάρχειν, οἷον οἰκίας ὅθεν μὲν ἡ κίνησις ἡ τέχνη καὶ ὁ οἰκοδόμος, οὗ δ' ἕνεκα τὸ ἔργον, ὕλη δὲ γῆ καὶ λίθοι, τὸ δ' εἶδος ὁ λόγος.

For the same thing can have all the kinds of causes. In a house, for instance, the source of motion is the craft and the builder; that for the sake of which is the product; the matter is earth and stones; and the form is the account.

ἐκ μὲν οὖν τῶν πάλαι διωρισμένων τίνα χρὴ καλεῖν τῶν ἐπιστημῶν σοφίαν ἔχει λόγον ἑκάστην προσαγορεύειν· ᾗ μὲν γὰρ ἀρχικωτάτη καὶ ἡγεμονικωτάτη καὶ ᾗ ὥσπερ δούλας οὐδ' ἀντειπεῖν τὰς ἄλλας ἐπιστήμας δίκαιον, ἡ τοῦ τέλους καὶ τἀγαθοῦ τοιαύτη (τούτου γὰρ ἕνεκα τἆλλα), ᾗ δὲ τῶν πρώτων αἰτίων καὶ τοῦ μάλιστα ἐπιστητοῦ διωρίσθη εἶναι, ἡ τῆς οὐσίας ἂν εἴη τοιαύτη· πολλαχῶς γὰρ ἐπισταμένων τὸ αὐτὸ μᾶλλον μὲν εἰδέναι φαμὲν τὸν τῷ εἶναι γνωρίζοντα τί τὸ πρᾶγμα ἢ τῷ μὴ εἶναι, αὐτῶν δὲ τούτων ἕτερον ἑτέρου μᾶλλον, καὶ μάλιστα τὸν τί ἐστιν ἀλλ' οὐ τὸν πόσον ἢ ποῖον ἢ τί ποιεῖν ἢ πάσχειν πέφυκεν.

Now on the basis of what we determined earlier about which of the sciences should be called wisdom, there is reason to give the name to each of them. Insofar as wisdom is the most authoritative and commanding science, the one that the other sciences, like slaves, may not justly even contradict, the science of the end and of the good is of this kind (for the other things are for the sake of this). But insofar as it was determined to be the science of the first causes and of what is most knowable, the science of substance would be of this kind. For although the same thing may be known in many ways, we say that someone who recognizes what a thing is by what it is knows it more than someone who recognizes it by what it is not; and among the former, one knows more than another, and most of all the one who knows what it is, rather than the one who knows how much it is, or of what quality, or what it naturally does or undergoes.

ἔτι δὲ καὶ ἐν τοῖς ἄλλοις τὸ εἰδέναι ἕκαστον καὶ ὧν ἀποδείξεις εἰσί, τότ' οἰόμεθα ὑπάρχειν ὅταν εἰδῶμεν τί ἐστιν (οἷον τί ἐστι τὸ τετραγωνίζειν, ὅτι μέσης εὕρεσις· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων), περὶ δὲ τὰς γενέσεις καὶ τὰς πράξεις καὶ περὶ πᾶσαν μεταβολὴν ὅταν εἰδῶμεν τὴν ἀρχὴν τῆς κινήσεως· τοῦτο δ' ἕτερον καὶ ἀντικείμενον τῷ τέλει, ὥστ' ἄλλης ἂν δόξειεν ἐπιστήμης εἶναι τὸ θεωρῆσαι τῶν αἰτίων τούτων ἕκαστον.—ἀλλὰ μὴν καὶ περὶ τῶν ἀποδεικτικῶν ἀρχῶν, πότερον μιᾶς ἐστὶν ἐπιστήμης ἢ πλειόνων, ἀμφισβητήσιμόν ἐστιν (λέγω δὲ ἀποδεικτικὰς τὰς κοινὰς δόξας ἐξ ὧν ἅπαντες δεικνύουσιν) οἷον ὅτι πᾶν ἀναγκαῖον ἢ φάναι ἢ ἀποφάναι, καὶ ἀδύνατον ἅμα εἶναι καὶ μὴ εἶναι, καὶ ὅσαι ἄλλαι τοιαῦται προτάσεις, πότερον μία τούτων ἐπιστήμη καὶ τῆς οὐσίας ἢ ἑτέρα, κἂν εἰ μὴ μία, ποτέραν χρὴ προσαγορεύειν τὴν ζητουμένην νῦν.

Further, in other cases too, we think we know each thing, even things of which there are demonstrations, when we know what it is (for instance, what squaring a rectangle is: that it is the finding of a mean proportional; and similarly in other cases). But with regard to comings-to-be and actions and every change, we think we know when we know the source of the motion; and this is different from the end, and its opposite. So it would seem to belong to a different science to study each of these causes.—But about the principles of demonstration too, it is disputed whether they belong to one science or to several (by principles of demonstration I mean the common beliefs from which everyone conducts proofs), such as that everything must be either affirmed or denied, and that it is impossible for something at the same time to be and not to be, and all other such premises: is there one science of these and of substance, or a different one? And if not one, which of

1 Aristippus of Cyrene, a companion of Socrates, held that pleasure is the good.

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		the two should we call the one we are now seeking?
	μιᾶς μὲν οὖν οὐκ εὔλογον εἶναι· τί γὰρ μᾶλλον γεωμετρίας ἢ ὁποιασοῦν περὶ τούτων ἐστὶν ἴδιον τὸ ἐπαΐειν; εἴπερ οὖν ὁμοίως μὲν ὁποιασοῦν ἐστίν, ἁπασῶν δὲ μὴ ἐνδέχεται,		It isn't reasonable that they should belong to one science. Why should understanding these matters be peculiar to geometry rather than to any other science whatever? If, then, it belongs equally to any science, but cannot belong to all of them,
	ὥσπερ οὐδὲ τῶν ἄλλων οὕτως οὐδὲ τῆς γνωριζούσης τὰς οὐσίας ἴδιόν ἐστι τὸ γιγνώσκειν περὶ αὐτῶν. ἅμα δὲ καὶ τίνα τρόπον ἔσται αὐτῶν ἐπιστήμη;		then, just as it is not peculiar to the others, neither is knowing about them peculiar to the science that knows substances. At the same time, in what way will there be a science of them?
997a	τί μὲν γὰρ ἕκαστον τούτων τυγχάνει ὂν καὶ νῦν γνωρίζομεν (χρῶνται γοῦν ὡς γιγνωσκομένοις αὐτοῖς καὶ ἄλλαι τέχναι)· εἰ δὲ ἀποδεικτικὴ περὶ αὐτῶν ἐστί, δεήσει τι γένος εἶναι ὑποκείμενον καὶ τὰ μὲν πάθη τὰ δ' ἀξιώματ' αὐτῶν (περὶ πάντων γὰρ ἀδύνατον ἀπόδειξιν εἶναι), ἀνάγκη γὰρ ἔκ τινων εἶναι καὶ περί τι καὶ τινῶν τὴν ἀπόδειξιν· ὥστε συμβαίνει πάντων εἶναι γένος ἕν τι τῶν δεικνυμένων, πᾶσαι γὰρ αἱ ἀποδεικτικαὶ χρῶνται τοῖς ἀξιώμασιν.—ἀλλὰ μὴν εἰ ἑτέρα ἡ τῆς οὐσίας καὶ ἡ περὶ τούτων, ποτέρα κυριωτέρα καὶ προτέρα πέφυκεν αὐτῶν; καθόλου γὰρ μάλιστα καὶ πάντων ἀρχαὶ τὰ ἀξιώματά ἐστιν, εἴ τ' ἐστὶ μὴ τοῦ φιλοσόφου, τίνος ἔσται περὶ αὐτῶν ἄλλου τὸ θεωρῆσαι τὸ ἀληθὲς καὶ ψεῦδος;—ὅλως τε τῶν οὐσιῶν πότερον μία πασῶν ἐστὶν ἢ πλείους ἐπιστῆμαι;		For even now we know what each of them is (other crafts, at any rate, use them as known). But if there is a demonstrative science of them, there will have to be some underlying genus, and some of them will be its attributes and others axioms (for there cannot be demonstration of everything); for demonstration must proceed from certain things, be about something, and be of certain things. So it turns out that everything demonstrated belongs to some one genus, since all the demonstrative sciences use the axioms.—But if the science of substance and the science of these axioms are different, which of them is by nature more authoritative and prior? The axioms are the most universal and are principles of all things; and if it does not belong to the philosopher, to whom else will it belong to study what is true and false about them?—And in general, is there one science of all substances, or more than one?
	εἰ μὲν οὖν μὴ μία, ποίας οὐσίας θετέον τὴν ἐπιστήμην ταύτην; τὸ δὲ μίαν πασῶν οὐκ εὔλογον· καὶ γὰρ ἂν ἀποδεικτικὴ μία περὶ πάντων εἴη τῶν συμβεβηκότων, εἴπερ πᾶσα ἀποδεικτικὴ περί τι ὑποκείμενον θεωρεῖ τὰ καθ' αὑτὰ συμβεβηκότα ἐκ τῶν κοινῶν δοξῶν. περὶ οὖν τὸ αὐτὸ γένος τὰ συμβεβηκότα καθ' αὑτὰ τῆς αὐτῆς ἐστὶ θεωρῆσαι ἐκ τῶν αὐτῶν δοξῶν. περί τε γὰρ ὃ μιᾶς καὶ ἐξ ὧν μιᾶς, εἴτε τῆς αὐτῆς εἴτε ἄλλης, ὥστε καὶ τὰ συμβεβηκότα, εἴθ' αὗται θεωροῦσιν εἴτ' ἐκ τούτων μία.—ἔτι δὲ πότερον περὶ τὰς οὐσίας μόνον ἡ θεωρία ἐστὶν ἢ καὶ περὶ τὰ συμβεβηκότα ταύταις;		If not one, what sort of substance should we assign this science to? But it is not reasonable that there should be one science of all of them; for then there would also be one demonstrative science of all the attributes, since every demonstrative science studies, concerning some underlying subject, the attributes that belong to it in their own right, starting from the common beliefs. So it belongs to the same science to study the attributes that belong in their own right to the same genus, starting from the same beliefs. For the subject belongs to one science, and the starting points belong to one science, whether the same or another; and so do the attributes, whether these sciences study them or one science made up of them.—Further, is our study concerned only with substances, or also with their attributes?
	λέγω δ' οἷον, εἰ τὸ στερεὸν οὐσία τίς ἐστι καὶ γραμμαὶ καὶ ἐπίπεδα, πότερον τῆς αὐτῆς ταῦτα γνωρίζειν ἐστὶν		I mean, for instance: if the solid is a kind of substance, and so are lines and planes, does it belong

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ἐπιστήμης καὶ τὰ συμβεβηκότα περὶ ἕκαστον γένος περὶ ὧν αἱ μαθηματικαὶ δεικνύουσιν, ἢ ἄλλης. εἰ μὲν γὰρ τῆς αὐτῆς, ἀποδεικτική τις ἂν εἴη καὶ ἡ τῆς οὐσίας, οὐ δοκεῖ δὲ τοῦ τί ἐστιν ἀπόδειξις εἶναι· εἰ δ' ἑτέρας, τίς ἔσται ἡ θεωροῦσα περὶ τὴν οὐσίαν τὰ συμβεβηκότα; τοῦτο γὰρ ἀποδοῦναι παγχάλεπον.—ἔτι δὲ πότερον τὰς αἰσθητὰς οὐσίας μόνας εἶναι φατέον ἢ καὶ παρὰ ταύτας ἄλλας, καὶ πότερον μοναχῶς ἢ πλείω γένη τετύχηκεν ὄντα τῶν οὐσιῶν, [997b] οἷον οἱ λέγοντες τά τε εἴδη καὶ τὰ μεταξύ, περὶ ἃ τὰς μαθηματικὰς εἶναί φασιν ἐπιστήμας;

to the same science to know these and also the attributes of each genus about which the mathematical sciences prove things, or to another? If to the same, then the science of substance too would be a demonstrative science; but it seems there is no demonstration of the what-it-is. If to another, what will the science be that studies the attributes of substance? That is extremely hard to say.—Further, should we say that only perceptible substances exist, or others besides these? And is there only one kind of substance, or are there in fact several kinds, [997b] as those say who posit both the Forms and the intermediates, which they say the mathematical sciences are about?

997b ὡς μὲν οὖν λέγομεν τὰ εἴδη αἴτιά τε καὶ οὐσίας εἶναι καθ' ἑαυτὰς εἴρηται ἐν τοῖς πρώτοις λόγοις περὶ αὐτῶν· πολλαχῇ δὲ ἐχόντων δυσκολίαν, οὐθενὸς ἧττον ἄτοπον τὸ φάναι μὲν εἶναί τινας φύσεις παρὰ τὰς ἐν τῷ οὐρανῷ, ταύτας δὲ τὰς αὐτὰς φάναι τοῖς αἰσθητοῖς πλὴν ὅτι τὰ μὲν ἀΐδια τὰ δὲ φθαρτά. αὐτὸ γὰρ ἄνθρωπόν φασιν εἶναι καὶ ἵππον καὶ ὑγίειαν, ἄλλο δ' οὐδέν, παραπλήσιον ποιοῦντες τοῖς θεοὺς μὲν εἶναι φάσκουσιν ἀνθρωποειδεῖς δέ· οὔτε γὰρ ἐκεῖνοι οὐδὲν ἄλλο ἐποίουν ἢ ἀνθρώπους ἀϊδίους, οὔθ' οὗτοι τὰ εἴδη ἄλλ' ἢ αἰσθητὰ ἀΐδια.

The way in which we say the Forms are causes and substances in their own right has been stated in our first discussions of them. They present difficulties in many respects, but nothing is more absurd than to say that there are certain natures besides those in the universe, and yet to say that these are the same as perceptible things, except that the former are eternal and the latter perishable. For they say there is a human being itself, and a horse itself, and health itself, and nothing more—doing much the same as those who say there are gods, but in human form. Those people made the gods nothing but eternal human beings, and these people make the Forms nothing but eternal perceptible things.

ἔτι δὲ εἴ τις παρὰ τὰ εἴδη καὶ τὰ αἰσθητὰ τὰ μεταξὺ θήσεται, πολλὰς ἀπορίας ἕξει· δῆλον γὰρ ὡς ὁμοίως γραμμαί τε παρά τ' αὐτὰς καὶ τὰς αἰσθητὰς ἔσονται καὶ ἕκαστον τῶν ἄλλων γενῶν· ὥστ' ἐπείπερ ἡ ἀστρολογία μία τούτων ἐστίν, ἔσται τις καὶ οὐρανὸς παρὰ τὸν αἰσθητὸν οὐρανὸν καὶ ἥλιός τε καὶ σελήνη καὶ τἆλλα ὁμοίως τὰ κατὰ τὸν οὐρανόν. καίτοι πῶς δεῖ πιστεῦσαι τούτοις; οὐδὲ γὰρ ἀκίνητον εὔλογον εἶναι, κινούμενον δὲ καὶ παντελῶς ἀδύνατον· ὁμοίως δὲ καὶ περὶ ὧν ἡ ὀπτικὴ πραγματεύεται καὶ ἡ ἐν τοῖς μαθήμασιν ἁρμονική· καὶ γὰρ ταῦτα ἀδύνατον εἶναι παρὰ τὰ αἰσθητὰ διὰ τὰς αὐτὰς αἰτίας· εἰ γὰρ ἔστιν αἰσθητὰ μεταξὺ καὶ αἰσθήσεις, δῆλον ὅτι καὶ ζῷα ἔσονται μεταξὺ αὐτῶν τε καὶ τῶν φθαρτῶν.

Further, if someone posits the intermediates besides the Forms and perceptible things, he will face many puzzles. Clearly there will likewise be lines besides the lines themselves and the perceptible lines, and so with each of the other kinds. So, since astronomy is one of these mathematical sciences, there will also be a heaven besides the perceptible heaven, and a sun and moon, and likewise all the other things in the heaven. Yet how are we to believe this? It isn't reasonable for this heaven to be unmoving, and for it to move is completely impossible. It is the same with the things that optics deals with, and mathematical harmonics: these too cannot exist besides perceptible things, for the same reasons. For if there are intermediate perceptible objects and perceptions, clearly there will also be animals intermediate between the animals themselves and the perishable ones.

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ἀπορήσειε δ' ἄν τις καὶ περὶ ποῖα τῶν ὄντων δεῖ ζητεῖν ταύτας τὰς ἐπιστήμας. εἰ γὰρ τούτῳ διοίσει τῆς γεωδαισίας ἡ γεωμετρία μόνον, ὅτι ἡ μὲν τούτων ἐστὶν ὧν αἰσθανόμεθα ἡ δ' οὐκ αἰσθητῶν, δῆλον ὅτι καὶ παρ' ἰατρικὴν ἔσται τις ἐπιστήμη καὶ παρ' ἑκάστην τῶν ἄλλων μεταξὺ αὐτῆς τε ἰατρικῆς καὶ τῆσδε τῆς ἰατρικῆς· καίτοι πῶς τοῦτο δυνατόν; καὶ γὰρ ἂν ὑγιείν' ἄττα εἴη παρὰ τὰ αἰσθητὰ καὶ αὐτὸ τὸ ὑγιεινόν. ἅμα δὲ οὐδὲ τοῦτο ἀληθές, ὡς ἡ γεωδαισία τῶν αἰσθητῶν ἐστὶ μεγεθῶν καὶ φθαρτῶν· ἐφθείρετο γὰρ ἂν φθειρομένων.—ἀλλὰ μὴν οὐδὲ τῶν αἰσθητῶν ἂν εἴη μεγεθῶν οὐδὲ περὶ τὸν οὐρανὸν ἡ ἀστρολογία τόνδε.

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One might also be puzzled about what kind of beings we should look to as the objects of these sciences. If geometry differs from land-surveying only in that the latter is about things we perceive and the former about things that are not perceptible, clearly there will also be a science besides medicine, and besides each of the others, intermediate between medicine itself and this medicine here. Yet how is that possible? For then there would be healthy things besides the perceptible ones and besides the healthy itself. At the same time, it isn't even true that land-surveying is about perceptible and perishable magnitudes; for then it would perish when they perished.—But neither would astronomy be about perceptible magnitudes, nor about this heaven here.

998a οὔτε γὰρ αἱ αἰσθηταὶ γραμμαὶ τοιαῦταί εἰσιν οἵας λέγει ὁ γεωμέτρης (οὐθὲν γὰρ εὐθὺ τῶν αἰσθητῶν οὕτως οὐδὲ στρογγύλον· ἅπτεται γὰρ τοῦ κανόνος οὐ κατὰ στιγμὴν ὁ κύκλος ἀλλ' ὥσπερ Πρωταγόρας ἔλεγεν ἐλέγχων τοὺς γεωμέτρας), οὔθ' αἱ κινήσεις καὶ ἕλικες τοῦ οὐρανοῦ ὅμοιαι περὶ ὧν ἡ ἀστρολογία ποιεῖται τοὺς λόγους, οὔτε τὰ σημεῖα τοῖς ἄστροις τὴν αὐτὴν ἔχει φύσιν. εἰσὶ δέ τινες οἵ φασιν εἶναι μὲν τὰ μεταξὺ ταῦτα λεγόμενα τῶν τε εἰδῶν καὶ τῶν αἰσθητῶν, οὐ μὴν χωρίς γε τῶν αἰσθητῶν ἀλλ' ἐν τούτοις· οἷς τὰ συμβαίνοντα ἀδύνατα πάντα μὲν πλείονος λόγου διελθεῖν, ἱκανὸν δὲ καὶ τὰ τοιαῦτα θεωρῆσαι.

For perceptible lines are not the sort the geometer speaks of (no perceptible thing is straight or round in that way: a circle touches a ruler not at a point, but in the way Protagoras used to say when refuting the geometers); nor are the motions and spirals of the heavens like those that astronomy gives accounts of; nor do points have the same nature as the stars. There are some who say that these so-called intermediates between the Forms and perceptible things do exist, though not separate from perceptible things but in them. To go through all the impossible consequences of this view would take a longer discussion, but it is enough to consider the following.[2]

οὔτε γὰρ ἐπὶ τούτων εὔλογον ἔχειν οὕτω μόνον, ἀλλὰ δῆλον ὅτι καὶ τὰ εἴδη ἐνδέχοιτ' ἂν ἐν τοῖς αἰσθητοῖς εἶναι (τοῦ γὰρ αὐτοῦ λόγου ἀμφότερα ταῦτά ἐστιν), ἔτι δὲ δύο στερεὰ ἐν τῷ αὐτῷ ἀναγκαῖον εἶναι τόπῳ, καὶ μὴ εἶναι ἀκίνητα ἐν κινουμένοις γε ὄντα τοῖς αἰσθητοῖς. ὅλως δὲ τίνος ἕνεκ' ἄν τις θείη εἶναι μὲν αὐτά, εἶναι δ' ἐν τοῖς αἰσθητοῖς; ταὐτὰ γὰρ συμβήσεται ἄτοπα τοῖς προειρημένοις· ἔσται γὰρ οὐρανός τις παρὰ τὸν οὐρανόν, πλήν γ' οὐ χωρὶς ἀλλ' ἐν τῷ αὐτῷ τόπῳ· ὅπερ ἐστὶν ἀδυνατώτερον.

It isn't reasonable that this should hold only for these things; clearly the Forms too could be in perceptible things (for both views rest on the same argument). Further, there would have to be two solids in the same place; and the intermediates could not be unmoving, since they would be in perceptible things, which move. And in general, why would anyone posit that they exist, but exist in perceptible things? The same absurdities will follow as those already mentioned: there will be a heaven besides the heaven, only not separate from it but in the same place—which is even more impossible.

2 Protagoras of Abdera, a leading sophist of the fifth century BC, held that "man is the measure of all things."

ARE GENERA THE PRINCIPLES?

Are the principles genera or constituents, and if genera, the highest or the lowest?

GREEK

περί τε τούτων οὖν ἀπορία πολλὴ πῶς δεῖ θέμενον τυχεῖν τῆς ἀληθείας, καὶ περὶ τῶν ἀρχῶν πότερον δεῖ τὰ γένη στοιχεῖα καὶ ἀρχὰς ὑπολαμβάνειν ἢ μᾶλλον ἐξ ὧν ἐνυπαρχόντων ἐστὶν ἕκαστον πρώτων, οἷον φωνῆς στοιχεῖα καὶ ἀρχαὶ δοκοῦσιν εἶναι ταῦτ' ἐξ ὧν σύγκεινται αἱ φωναὶ πρώτων, ἀλλ' οὐ τὸ κοινὸν ἡ φωνή· καὶ τῶν διαγραμμάτων ταῦτα στοιχεῖα λέγομεν ὧν αἱ ἀποδείξεις ἐνυπάρχουσιν ἐν ταῖς τῶν ἄλλων ἀποδείξεσιν ἢ πάντων ἢ τῶν πλείστων, ἔτι δὲ τῶν σωμάτων καὶ οἱ πλείω λέγοντες εἶναι στοιχεῖα καὶ οἱ ἕν, ἐξ ὧν σύγκειται καὶ ἐξ ὧν συνέστηκεν ἀρχὰς λέγουσιν εἶναι, οἷον Ἐμπεδοκλῆς πῦρ καὶ ὕδωρ καὶ τὰ μετὰ τούτων στοιχεῖά φησιν εἶναι ἐξ ὧν ἐστὶ τὰ ὄντα ἐνυπαρχόντων, ἀλλ' οὐχ ὡς γένη λέγει ταῦτα τῶν ὄντων.

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About these matters, then, there is much puzzlement as to what one should posit in order to hit on the truth. And about the principles too: should one take the genera to be elements and principles, or rather the primary constituents present in each thing? For instance, the elements and principles of spoken sound are thought to be the primary things of which spoken sounds are composed, not the common genus, sound. And in geometry we call those propositions elements whose proofs are contained in the proofs of the others, either of all or of most. Further, in the case of bodies, both those who say there are several elements and those who say there is one call principles the things of which bodies are composed and made up. Empedocles, for instance, says that fire and water and the rest are elements, constituents from which the things that are come, but he does not speak of them as genera of the things that are.

πρὸς δὲ τούτοις καὶ τῶν ἄλλων εἴ τις ἐθέλει τὴν φύσιν ἀθρεῖν, 998b οἷον κλίνην ἐξ ὧν μορίων συνέστηκε καὶ πῶς συγκειμένων, τότε γνωρίζει τὴν φύσιν αὐτῆς.—ἐκ μὲν οὖν τούτων τῶν λόγων οὐκ ἂν εἴησαν αἱ ἀρχαὶ τὰ γένη τῶν ὄντων· εἰ δ' ἕκαστον μὲν γνωρίζομεν διὰ τῶν ὁρισμῶν, ἀρχαὶ δὲ τὰ γένη τῶν ὁρισμῶν εἰσίν, ἀνάγκη καὶ τῶν ὁριστῶν ἀρχὰς εἶναι τὰ γένη. κἂν εἴ ἔστι τὴν τῶν ὄντων λαβεῖν ἐπιστήμην τὸ τῶν εἰδῶν λαβεῖν καθ' ἃ λέγονται τὰ ὄντα, τῶν γε εἰδῶν ἀρχαὶ τὰ γένη εἰσίν. φαίνονται δέ τινες καὶ τῶν λεγόντων στοιχεῖα τῶν ὄντων τὸ ἓν ἢ τὸ ὂν ἢ τὸ μέγα καὶ μικρὸν ὡς γένεσιν αὐτοῖς χρῆσθαι.—ἀλλὰ μὴν οὐδὲ ἀμφοτέρως γε οἷόν τε λέγειν τὰς ἀρχάς.

Besides, if anyone wants to look into the nature of other things too—a bed, for instance— 998b he knows its nature when he knows what parts it is made of and how they are put together.—On these arguments, then, the principles would not be the genera of the things that are. But if we know each thing through its definitions, and the genera are principles of definitions, the genera must also be principles of the things defined. And if getting knowledge of the things that are is getting knowledge of the species by which things are named, the genera are at any rate principles of the species. Some of those who say that the elements of the things that are are the one, or being, or the great and small, also appear to treat them as genera.—But it is not possible to speak of the principles in both ways.

998b ὁ μὲν γὰρ λόγος τῆς οὐσίας εἷς· ἕτερος δ' ἔσται ὁ διὰ τῶν γενῶν ὁρισμὸς καὶ ὁ λέγων ἐξ ὧν ἔστιν ἐνυπαρχόντων.—πρὸς δὲ τούτοις εἰ καὶ ὅτι μάλιστα ἀρχαὶ τὰ γένη εἰσί, πότερον δεῖ νομίζειν τὰ πρῶτα τῶν γενῶν ἀρχὰς ἢ τὰ ἔσχατα κατηγορούμενα ἐπὶ τῶν ἀτόμων; καὶ γὰρ τοῦτο ἔχει ἀμφισβήτησιν. εἰ μὲν γὰρ ἀεὶ τὰ καθόλου μᾶλλον ἀρχαί, φανερὸν ὅτι τὰ ἀνωτάτω τῶν γενῶν· ταῦτα γὰρ λέγεται κατὰ πάντων. τοσαῦταί οὖν ἔσονται ἀρχαὶ τῶν ὄντων ὅσαπερ τὰ πρῶτα γένη, ὥστ' ἔσται τό τε ὂν καὶ τὸ

For the account of a substance is one; but the definition through the genera will be different from the account that states the constituents a thing is made of.—Further, even granting that the genera are principles as much as can be, should we regard the first genera as principles, or the last ones, predicated of the individuals? This too is disputed. If the more universal is always more a principle, clearly it will be the highest genera, since

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ἓν ἀρχαὶ καὶ οὐσίαι· ταῦτα γὰρ κατὰ πάντων μάλιστα λέγεται τῶν ὄντων.

οὐχ οἷόν τε δὲ τῶν ὄντων ἓν εἶναι γένος οὔτε τὸ ἓν οὔτε τὸ ὄν· ἀνάγκη μὲν γὰρ τὰς διαφορὰς ἑκάστου γένους καὶ εἶναι καὶ μίαν εἶναι ἑκάστην, ἀδύνατον δὲ κατηγορεῖσθαι ἢ τὰ εἴδη τοῦ γένους ἐπὶ τῶν οἰκείων διαφορῶν ἢ τὸ γένος ἄνευ τῶν αὐτοῦ εἰδῶν, ὥστ' εἴπερ τὸ ἓν γένος ἢ τὸ ὄν, οὐδεμία διαφορὰ οὔτε ὂν οὔτε ἓν ἔσται. ἀλλὰ μὴν εἰ μὴ γένη, οὐδ' ἀρχαὶ ἔσονται, εἴπερ ἀρχαὶ τὰ γένη.

ἔτι καὶ τὰ μεταξὺ συλλαμβανόμενα μετὰ τῶν διαφορῶν ἔσται γένη μέχρι τῶν ἀτόμων (νῦν δὲ τὰ μὲν δοκεῖ τὰ δ' οὐ δοκει)· πρὸς δὲ τούτοις ἔτι μᾶλλον αἱ διαφοραὶ ἀρχαὶ ἢ τὰ γένη· εἰ δὲ καὶ αὗται ἀρχαί, ἄπειροι ὡς εἰπεῖν ἀρχαὶ γίγνονται, ἄλλως τε κἄν τις τὸ πρῶτον γένος ἀρχὴν τιθῇ. 999a ἀλλὰ μὴν καὶ εἰ μᾶλλόν γε ἀρχοειδὲς τὸ ἕν ἐστιν, ἓν δὲ τὸ ἀδιαίρετον, ἀδιαίρετον δὲ ἅπαν ἢ κατὰ τὸ ποσὸν ἢ κατ' εἶδος, πρότερον δὲ τὸ κατ' εἶδος, τὰ δὲ γένη διαιρετὰ εἰς εἴδη, μᾶλλον ἂν ἓν τὸ ἔσχατον εἴη κατηγορούμενον· οὐ γάρ ἐστι γένος ἄνθρωπος τῶν τινῶν ἀνθρώπων.

999a ἔτι ἐν οἷς τὸ πρότερον καὶ ὕστερόν ἐστιν, οὐχ οἷόν τε τὸ ἐπὶ τούτων εἶναί τι παρὰ ταῦτα (οἷον εἰ πρώτη τῶν ἀριθμῶν ἡ δυάς, οὐκ ἔσται τις ἀριθμὸς παρὰ τὰ εἴδη τῶν ἀριθμῶν· ὁμοίως δὲ οὐδὲ σχῆμα παρὰ τὰ εἴδη τῶν σχημάτων· εἰ δὲ μὴ τούτων, σχολῇ τῶν γε ἄλλων ἔσται τὰ γένη παρὰ τὰ εἴδη· τούτων γὰρ δοκεῖ μάλιστα εἶναι γένη)· ἐν δὲ τοῖς ἀτόμοις οὐκ ἔστι τὸ μὲν πρότερον τὸ δ' ὕστερον. ἔτι ὅπου τὸ μὲν βέλτιον τὸ δὲ χεῖρον, ἀεὶ τὸ βέλτιον πρότερον· ὥστ' οὐδὲ τούτων ἂν εἴη γένος.—ἐκ μὲν οὖν τούτων μᾶλλον φαίνεται τὰ ἐπὶ τῶν ἀτόμων κατηγορούμενα ἀρχαὶ εἶναι τῶν γενῶν· πάλιν δὲ πῶς αὖ δεῖ ταύτας ἀρχὰς ὑπολαβεῖν οὐ ῥᾴδιον εἰπεῖν.

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these are said of all things. There will then be as many principles of the things that are as there are primary genera, so that being and the one will be principles and substances; for these above all are said of all things that are.

But neither the one nor being can be a single genus of the things that are. For the differentiae of each genus must each both be and be one; but it is impossible for the species of a genus to be predicated of their own differentiae, or for the genus to be predicated of them without its species. So if the one or being is a genus, no differentia will be either a being or one. But if they are not genera, they will not be principles either, if the genera are the principles.

Further, the intermediate kinds, taken together with their differentiae, will be genera all the way down to the individuals (but as it is, some are thought to be genera and others are not). Moreover, the differentiae are principles even more than the genera are; but if they too are principles, the principles become, so to speak, infinite in number—especially if one takes the first genus as a principle. 999a But then again, if the one is more of the nature of a principle, and the one is what is indivisible, and everything indivisible is so either in quantity or in species, and what is indivisible in species is prior, and genera are divisible into species, then the last thing predicated would be more one; for "human being" is not the genus of particular human beings.

Further, where things stand as prior and posterior, what is predicated of them cannot be something besides them. (For instance, if two is the first of the numbers, there will not be a number besides the kinds of numbers; likewise there will not be a figure besides the kinds of figures. And if there are no genera besides the species in these cases, there will hardly be in others, for these are thought to have genera most of all.) But among individuals, one is not prior and another posterior. Further, where one thing is better and another worse, the better is always prior; so there could be no genus of these either.—From these considerations, then, the things predicated of individuals seem to be principles rather than the genera. But then again, it is not easy to say in what sense one should take these to be principles.

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τὴν μὲν γὰρ ἀρχὴν δεῖ καὶ τὴν αἰτίαν εἶναι παρὰ τὰ πράγματα ὧν ἀρχή, καὶ δύνασθαι εἶναι χωριζομένην αὐτῶν· τοιοῦτον δέ τι παρὰ τὸ καθ' ἕκαστον εἶναι διὰ τί ἄν τις ὑπολάβοι, πλὴν ὅτι καθόλου κατηγορεῖται καὶ κατὰ πάντων; ἀλλὰ μὴν εἰ διὰ τοῦτο, τὰ μᾶλλον καθόλου μᾶλλον θετέον ἀρχάς· ὥστε ἀρχαὶ τὰ πρῶτ' ἂν εἴησαν γένη.	For the principle and the cause must exist besides the things whose principle it is, and must be capable of existing separated from them. But why would anyone suppose that anything of this sort exists besides the particular, except that it is predicated universally and of all? But if that is the reason, the more universal things must be posited as principles to a higher degree; so the principles would be the first genera.

UNIVERSALS, PARTICULARS AND THE ONE

Puzzles about knowledge of particulars, perishable and imperishable principles, and whether being and the one are substances.

GREEK	ENGLISH
ἔστι δ' ἐχομένη τε τούτων ἀπορία καὶ πασῶν χαλεπωτάτη καὶ ἀναγκαιοτάτη θεωρῆσαι, περὶ ἧς ὁ λόγος ἐφέστηκε νῦν. εἴτε γὰρ μὴ ἔστι τι παρὰ τὰ καθ' ἕκαστα, τὰ δὲ καθ' ἕκαστα ἄπειρα, τῶν δ' ἀπείρων πῶς ἐνδέχεται λαβεῖν ἐπιστήμην; ᾗ γὰρ ἕν τι καὶ ταὐτόν, καὶ ᾗ καθόλου τι ὑπάρχει, ταύτῃ πάντα γνωρίζομεν.—ἀλλὰ μὴν εἰ τοῦτο ἀναγκαῖόν ἐστι καὶ δεῖ τι εἶναι παρὰ τὰ καθ' ἕκαστα, ἀναγκαῖον ἂν εἴη τὰ γένη εἶναι παρὰ τὰ καθ' ἕκαστα, ἤτοι τὰ ἔσχατα ἢ τὰ πρῶτα· τοῦτο δ' ὅτι ἀδύνατον ἄρτι διηπορήσαμεν.—ἔτι εἰ ὅτι μάλιστα ἔστι τι παρὰ τὸ σύνολον ὅταν κατηγορηθῇ τι τῆς ὕλης, πότερον, εἰ ἔστι, παρὰ πάντα δεῖ εἶναί τι, ἢ παρὰ μὲν ἔνια εἶναι παρὰ δ' ἔνια μὴ εἶναι, ἢ παρ' οὐδέν;	Connected with these is a puzzle that is the hardest of all and the most necessary to study, the one our discussion has now arrived at. If there is nothing besides particulars, and particulars are infinite, how is it possible to get scientific knowledge of what is infinite? For it is insofar as things are something one and the same, and insofar as something universal belongs to them, that we know anything at all.—But if this is necessary, and there must be something besides the particulars, then the genera must exist besides the particulars, either the last ones or the first; and we have just gone through the puzzle showing that this is impossible.—Further, even granting as fully as possible that there is something besides the composite, when something is predicated of the matter: if there is, must there be something besides all composites, or besides some but not others, or besides none?
999b εἰ μὲν οὖν μηδέν ἐστι παρὰ τὰ καθ' ἕκαστα, οὐθὲν ἂν εἴη νοητὸν ἀλλὰ πάντα αἰσθητὰ καὶ ἐπιστήμη οὐδενός, εἰ μή τις εἶναι λέγει τὴν αἴσθησιν ἐπιστήμην. ἔτι δ' οὐδ' ἀΐδιον οὐθὲν οὐδ' ἀκίνητον (τὰ γὰρ αἰσθητὰ πάντα φθείρεται καὶ ἐν κινήσει ἐστίν)· ἀλλὰ μὴν εἴ γε ἀΐδιον μηθέν ἐστιν, οὐδὲ γένεσιν εἶναι δυνατόν.	If there is nothing besides particulars, nothing would be intelligible; everything would be perceptible, and there would be no scientific knowledge of anything, unless one says that perception is scientific knowledge. Further, nothing would be eternal or unmoving (for all perceptible things perish and are in motion). But if nothing is eternal, coming-to-be is not possible either.
ἀνάγκη γὰρ εἶναί τι τὸ γιγνόμενον καὶ ἐξ οὗ γίγνεται καὶ τούτων τὸ ἔσχατον ἀγένητον, εἴπερ ἵσταταί τε καὶ ἐκ μὴ ὄντος γενέσθαι ἀδύνατον· ἔτι δὲ γενέσεως οὔσης καὶ κινήσεως ἀνάγκη καὶ πέρας εἶναι (οὔτε γὰρ ἄπειρός ἐστιν οὐδεμία κίνησις ἀλλὰ πάσης ἔστι τέλος, γίγνεσθαί τε οὐχ οἷόν τε τὸ ἀδύνατον γενέσθαι· τὸ δὲ γεγονὸς ἀνάγκη εἶναι ὅτε πρῶτον γέγονεν)· ἔτι δ' εἴπερ ἡ ὕλη ἔστι διὰ τὸ	For there must be something that comes to be and something from which it comes to be, and the last of these must be ungenerated, if the series stops and if it is impossible for anything to come to be from what is not. Further, if there is coming-to-be and motion, there must also be a limit (for no motion is infinite; every motion has an end, and what

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ἀγένητος εἶναι, πολὺ ἔτι μᾶλλον εὔλογον εἶναι τὴν οὐσίαν, ὅ ποτε ἐκείνη γίγνεται· εἰ γὰρ μήτε τοῦτο ἔσται μήτε ἐκείνη, οὐθὲν ἔσται τὸ παράπαν, εἰ δὲ τοῦτο ἀδύνατον, ἀνάγκη τι εἶναι παρὰ τὸ σύνολον, τὴν μορφὴν καὶ τὸ εἶδος.—εἰ δ' αὖ τις τοῦτο θήσει, ἀπορία ἐπὶ τίνων τε θήσει τοῦτο καὶ ἐπὶ τίνων οὔ.

cannot finish coming to be cannot be coming to be; and what has come to be must exist as soon as it has come to be). Further, if matter exists because it is ungenerated, it is still more reasonable that the substance should exist—that which the matter comes to be at any given time. For if neither this nor the matter is to exist, nothing will exist at all; and if that is impossible, there must be something besides the composite, namely the shape and form.—But if someone posits this, there is a puzzle about which cases he will posit it in and which not.

ὅτι μὲν γὰρ ἐπὶ πάντων οὐχ οἷόν τε, φανερόν· οὐ γὰρ ἂν θείημεν εἶναί τινα οἰκίαν παρὰ τὰς τινὰς οἰκίας. πρὸς δὲ τούτοις πότερον ἡ οὐσία μία πάντων ἔσται, οἷον τῶν ἀνθρώπων; ἀλλ' ἄτοπον· ἓν γὰρ πάντα ὧν ἡ οὐσία μία. ἀλλὰ πολλὰ καὶ διάφορα; ἀλλὰ καὶ τοῦτο ἄλογον. ἅμα δὲ καὶ πῶς γίγνεται ἡ ὕλη τούτων ἕκαστον καὶ ἔστι τὸ σύνολον ἄμφω ταῦτα;—ἔτι δὲ περὶ τῶν ἀρχῶν καὶ τόδε ἀπορήσειεν ἄν τις.

That it cannot be in all cases is evident: we would not posit that there is a house besides the particular houses. In addition, will there be one substance for all of them—for all human beings, for instance? That is absurd, for all things whose substance is one are one. Many different substances, then? That too is unreasonable. And at the same time, how does the matter become each of these things, and how is the composite both of them?—Further, one might raise the following puzzle about the principles as well.

εἰ μὲν γὰρ εἴδει εἰσὶν ἕν, οὐθὲν ἔσται ἀριθμῷ ἕν, οὐδ' αὐτὸ τὸ ἓν καὶ τὸ ὄν· καὶ τὸ ἐπίστασθαι πῶς ἔσται, εἰ μή τι ἔσται ἓν ἐπὶ πάντων;—ἀλλὰ μὴν εἰ ἀριθμῷ ἓν καὶ μία ἑκάστη τῶν ἀρχῶν, καὶ μὴ ὥσπερ ἐπὶ τῶν αἰσθητῶν ἄλλαι ἄλλων (οἷον τῆσδε τῆς συλλαβῆς τῷ εἴδει τῆς αὐτῆς οὔσης καὶ αἱ ἀρχαὶ εἴδει αἱ αὐταί· καὶ γὰρ αὗται ὑπάρχουσιν ἀριθμῷ ἕτεραι),—εἰ δὲ μὴ οὕτως ἀλλ' αἱ τῶν ὄντων ἀρχαὶ ἀριθμῷ ἕν εἰσιν, οὐκ ἔσται παρὰ τὰ στοιχεῖα οὐθὲν ἕτερον· τὸ γὰρ ἀριθμῷ ἓν ἢ τὸ καθ' ἕκαστον λέγειν διαφέρει οὐθέν· οὕτω γὰρ λέγομεν τὸ καθ' ἕκαστον, τὸ ἀριθμῷ ἕν, καθόλου δὲ τὸ ἐπὶ τούτων.

If they are one in kind, nothing will be one in number, not even the one itself and being itself; and how will there be scientific knowledge, if there is not to be something that is one over all cases?—But suppose each of the principles is one in number and single, and not, as with perceptible things, different for different things (for instance, when this syllable is the same in kind as another, its principles too are the same in kind; for they too are different in number). If it is not like that, but the principles of the things that are are one in number, there will be nothing else besides the elements. For there is no difference between saying "one in number" and saying "particular": this is what we mean by the particular, what is one in number, and by the universal, what is over these.

1000a ὥσπερ οὖν εἰ τὰ τῆς φωνῆς ἀριθμῷ ἦν στοιχεῖα ὡρισμένα, ἀναγκαῖον ἦν ἂν τοσαῦτα εἶναι τὰ πάντα γράμματα ὅσαπερ τὰ στοιχεῖα, μὴ ὄντων γε δύο τῶν αὐτῶν μηδὲ πλειόνων.

It would be just as, if the elements of spoken sound were limited in number, all the letters there are would have to be exactly as many as the elements, since there could not be two or more of the same one.

οὐθενὸς δ' ἐλάττων ἀπορία παραλέλειπται καὶ τοῖς νῦν καὶ τοῖς πρότερον, πότερον αἱ αὐταὶ τῶν φθαρτῶν καὶ τῶν ἀφθάρτων ἀρχαί εἰσιν ἢ ἕτεραι. εἰ μὲν γὰρ αἱ αὐταί, πῶς τὰ μὲν φθαρτὰ τὰ δὲ ἄφθαρτα, καὶ διὰ τίν' αἰτίαν;

A puzzle second to none has been neglected both by thinkers of the present and by those before them: whether the principles of perishable and imperishable things are the same or different. If

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they are the same, how is it that some things are perishable and others imperishable, and for what reason?

οἱ μὲν οὖν περὶ Ἡσίοδον καὶ πάντες ὅσοι θεολόγοι μόνον ἐφρόντισαν τοῦ πιθανοῦ τοῦ πρὸς αὐτούς, ἡμῶν δ' ὠλιγώρησαν (θεοὺς γὰρ ποιοῦντες τὰς ἀρχὰς καὶ ἐκ θεῶν γεγονέναι, τὰ μὴ γευσάμενα τοῦ νέκταρος καὶ τῆς ἀμβροσίας θνητὰ γενέσθαι φασίν, δῆλον ὡς ταῦτα τὰ ὀνόματα γνώριμα λέγοντες αὐτοῖς· καίτοι περὶ αὐτῆς τῆς προσφορᾶς τῶν αἰτίων τούτων ὑπὲρ ἡμᾶς εἰρήκασιν· εἰ μὲν γὰρ χάριν ἡδονῆς αὐτῶν θιγγάνουσιν, οὐθὲν αἴτια τοῦ εἶναι τὸ νέκταρ καὶ ἡ ἀμβροσία, εἰ δὲ τοῦ εἶναι, πῶς ἂν εἶεν ἀΐδιοι δεόμενοι τροφῆς)·—ἀλλὰ περὶ μὲν τῶν μυθικῶς σοφιζομένων οὐκ ἄξιον μετὰ σπουδῆς σκοπεῖν· παρὰ δὲ τῶν δι' ἀποδείξεως λεγόντων δεῖ πυνθάνεσθαι διερωτῶντας τί δή ποτ' ἐκ τῶν αὐτῶν ὄντα τὰ μὲν ἀΐδια τὴν φύσιν ἐστὶ τὰ δὲ φθείρεται τῶν ὄντων.

Hesiod and his followers, and all the theologians, cared only for what was convincing to themselves, and paid no attention to us. (Making the principles gods, or born from gods, they say that the beings that did not taste nectar and ambrosia became mortal—clearly using these words in a sense they themselves understood; and yet what they have said about the very way these causes are applied is beyond us. For if the gods take them for the sake of pleasure, nectar and ambrosia are in no way causes of their being; and if for the sake of their being, how could they be eternal if they need nourishment?)—But those who philosophize cleverly in the form of myth are not worth examining seriously. It is those who speak by way of demonstration that we must question, cross-examining them as to why, if things are made of the same elements, some of them are eternal by nature while others perish.

ἐπεὶ δὲ οὔτε αἰτίαν λέγουσιν οὔτε εὔλογον οὕτως ἔχειν, δῆλον ὡς οὐχ αἱ αὐταὶ ἀρχαὶ οὐδὲ αἰτίαι αὐτῶν ἂν εἶεν. καὶ γὰρ ὅνπερ οἰηθείη λέγειν ἄν τις μάλιστα ὁμολογουμένως αὐτῷ, Ἐμπεδοκλῆς, καὶ οὗτος ταὐτὸν πέπονθεν· τίθησι μὲν γὰρ ἀρχήν τινα αἰτίαν τῆς φθορᾶς τὸ νεῖκος, δόξειε δ' ἂν οὐθὲν ἧττον καὶ τοῦτο γεννᾶν ἔξω τοῦ ἑνός· ἅπαντα γὰρ ἐκ τούτου τἄλλά ἐστι πλὴν ὁ θεός. λέγει γοῦν ἐξ ὧν πάνθ' ὅσα τ' ἦν ὅσα τ' ἔσθ' ὅσα τ' ἔσται ὀπίσσω,
δένδρεά τ' ἐβλάστησε καὶ ἀνέρες ἠδὲ γυναῖκες,
θῆρές τ' οἰωνοί τε καὶ ὑδατοθρέμμονες ἰχθῦς,
καί τε θεοὶ δολιχαίωνες.

Since they state no cause, and it isn't reasonable that things should be so, clearly the principles and causes of these things could not be the same. Even the thinker whom one might suppose to speak most consistently, Empedocles, is in the same position. He posits Strife as a principle, a cause of destruction; yet Strife would seem no less to generate everything except the One, since everything else comes from it except the god. At any rate he says: "From these came all that was, and is, and will be hereafter:
trees sprang up, and men and women,
beasts and birds and water-nourished fish,
and long-lived gods."

καὶ χωρὶς δὲ τούτων δῆλον· [1000b] εἰ γὰρ μὴ ἦν ἐν τοῖς πράγμασιν, ἓν ἂν ἦν ἅπαντα, ὡς φησίν· ὅταν γὰρ συνέλθῃ, τότε δ' ἔσχατον ἵστατο νεῖκος. διὸ καὶ συμβαίνει αὐτῷ τὸν εὐδαιμονέστατον θεὸν ἧττον φρόνιμον εἶναι τῶν ἄλλων· οὐ γὰρ γνωρίζει ἅπαντα· τὸ γὰρ νεῖκος οὐκ ἔχει, ἡ δὲ γνῶσις τοῦ ὁμοίου τῷ ὁμοίῳ. γαίῃ μὲν γάρ, (φησί,) γαῖαν ὀπώπαμεν, ὕδατι δ' ὕδωρ,
αἰθέρι δ' αἰθέρα δῖον, ἀτὰρ πυρὶ πῦρ ἀΐδηλον,
στοργὴν δὲ στοργῇ, νεῖκος δέ τε νείκεϊ λυγρῷ. ἀλλ' ὅθεν δὴ ὁ λόγος, τοῦτό γε φανερόν, ὅτι συμβαίνει αὐτῷ τὸ νεῖκος μηθὲν μᾶλλον φθορᾶς ἢ τοῦ εἶναι αἴτιον· ὁμοίως δ' οὐδ' ἡ φιλότης τοῦ εἶναι, συνάγουσα γὰρ εἰς τὸ ἓν φθείρει τὰ ἄλλα.

And this is clear even apart from these lines. [1000b] For if Strife were not present in things, all things would be one, as he says: "for when they came together, then Strife stood at the outermost edge." That is why it follows for him that the most blessed god is less wise than the others; for he does not know all things, since he does not have Strife in him, and knowledge is of like by like. "For by earth," he says, "we see earth, by water water, by air bright air, by fire consuming fire, affection by affection, and strife by grievous strife." But to return to where the argument began, this much is evident: it follows for him that Strife

	GREEK	ENGLISH
		is no more a cause of destruction than of being. Nor, likewise, is Love a cause of being; for by bringing things together into the One it destroys everything else.
1000b	καὶ ἅμα δὲ αὐτῆς τῆς μεταβολῆς αἴτιον οὐθὲν λέγει ἀλλ' ἢ ὅτι οὕτως πέφυκεν· ἀλλ' ὅτε δὴ μέγα νεῖκος ἐνὶ μελέεσσιν ἐθρέφθη, εἰς τιμάς τ' ἀνόρουσε τελειομένοιο χρόνοιο ὅς σφιν ἀμοιβαῖος πλατέος παρ' ἐλήλαται ὅρκου· ὡς ἀναγκαῖον μὲν ὂν μεταβάλλειν· αἰτίαν δὲ τῆς ἀνάγκης οὐδεμίαν δηλοῖ. ἀλλ' ὅμως τοσοῦτόν γε μόνος λέγει ὁμολογουμένως· οὐ γὰρ τὰ μὲν φθαρτὰ τὰ δὲ ἄφθαρτα ποιεῖ τῶν ὄντων ἀλλὰ πάντα φθαρτὰ πλὴν τῶν στοιχείων.	At the same time, he gives no cause of the change itself, except that this is how things naturally are: "But when great Strife had grown strong in the limbs and leapt up to claim its honors, as the time was fulfilled that is fixed for them in turn by a broad oath"—implying that the change is necessary; but he points to no cause of the necessity. Still, to this extent at least he alone speaks consistently: he does not make some of the things that are perishable and others imperishable, but makes all things perishable except the elements.
	ἡ δὲ νῦν λεγομένη ἀπορία ἐστὶ διὰ τί τὰ μὲν τὰ δ' οὔ, εἴπερ ἐκ τῶν αὐτῶν ἐστίν.—ὅτι μὲν οὖν οὐκ ἂν εἴησαν αἱ αὐταὶ ἀρχαί, τοσαῦτα εἰρήσθω· εἰ δὲ ἕτεραι ἀρχαί, μία μὲν ἀπορία πότερον ἄφθαρτοι καὶ αὗται ἔσονται ἢ φθαρταί· εἰ μὲν γὰρ φθαρταί, δῆλον ὡς ἀναγκαῖον καὶ ταύτας ἔκ τινων εἶναι (πάντα γὰρ φθείρεται εἰς ταῦτ' ἐξ ὧν ἔστιν), ὥστε συμβαίνει τῶν ἀρχῶν ἑτέρας ἀρχὰς εἶναι προτέρας, τοῦτο δ' ἀδύνατον, καὶ εἰ ἵσταται καὶ εἰ βαδίζει εἰς ἄπειρον· ἔτι δὲ πῶς ἔσται τὰ φθαρτά, εἰ αἱ ἀρχαὶ ἀναιρεθήσονται; εἰ δὲ ἄφθαρτοι, διὰ τί ἐκ μὲν τούτων ἀφθάρτων οὐσῶν φθαρτὰ ἔσται, ἐκ δὲ τῶν ἑτέρων ἄφθαρτα; τοῦτο γὰρ οὐκ εὔλογον, ἀλλ' ἢ ἀδύνατον ἢ πολλοῦ λόγου δεῖται.	The puzzle now being raised is why some things are perishable and others not, if they are made of the same things.—Let that much be said to show that the principles could not be the same. But if the principles are different, one puzzle is whether they too will be imperishable or perishable. If perishable, clearly they too must come from certain things (for everything perishes into the things it comes from), so it turns out that there are other principles prior to the principles. And this is impossible, whether the series stops or goes on to infinity. Further, how will perishable things exist, if their principles are to be done away with? And if the principles are imperishable, why will perishable things come from these imperishable principles, while imperishable things come from the others? That is not reasonable; either it is impossible, or it needs a long argument.
	ἔτι δὲ οὐδ' ἐγκεχείρηκεν οὐδεὶς ἑτέρας, ἀλλὰ τὰς αὐτὰς ἁπάντων λέγουσιν ἀρχάς. 1001a ἀλλὰ τὸ πρῶτον ἀπορηθὲν ἀποτρώγουσιν ὥσπερ τοῦτο μικρόν τι λαμβάνοντες.	Further, no one has even tried to say that there are different principles; they say that all things have the same principles. 1001a But they just nibble at the first puzzle, as if they took it to be something trivial.
1001a	πάντων δὲ καὶ θεωρῆσαι χαλεπώτατον καὶ πρὸς τὸ γνῶναι τἀληθὲς ἀναγκαιότατον πότερόν ποτε τὸ ὂν καὶ τὸ ἓν οὐσίαι τῶν ὄντων εἰσί, καὶ ἑκάτερον αὐτῶν οὐχ ἕτερόν τι ὂν τὸ μὲν ἓν τὸ δὲ ὄν ἐστιν, ἢ δεῖ ζητεῖν τί ποτ' ἐστὶ τὸ ὂν καὶ τὸ ἓν ὡς ὑποκειμένης ἄλλης φύσεως. οἱ μὲν γὰρ ἐκείνως οἱ δ' οὕτως οἴονται τὴν φύσιν ἔχειν.	Hardest of all to study, and most necessary for knowing the truth, is this: whether being and the one are the substances of the things that are, each of them being nothing else but, respectively, one and being; or whether we must ask what being and the one are, on the assumption that some other nature underlies them. For some think their nature is of the first sort, and others of the second.

GREEK

Πλάτων μὲν γὰρ καὶ οἱ Πυθαγόρειοι οὐχ ἕτερόν τι τὸ ὂν οὐδὲ τὸ ἓν ἀλλὰ τοῦτο αὐτῶν τὴν φύσιν εἶναι, ὡς οὔσης τῆς οὐσίας αὐτοῦ τοῦ ἑνὶ εἶναι καὶ ὄντι· οἱ δὲ περὶ φύσεως, οἷον Ἐμπεδοκλῆς ὡς εἰς γνωριμώτερον ἀνάγων λέγει ὅ τι τὸ ἕν ἐστιν· δόξειε γὰρ ἂν λέγειν τοῦτο τὴν φιλίαν εἶναι (αἰτία γοῦν ἐστὶν αὕτη τοῦ ἓν εἶναι πᾶσιν), ἕτεροι δὲ πῦρ, οἱ δ' ἀέρα φασὶν εἶναι τὸ ἓν τοῦτο καὶ τὸ ὄν, ἐξ οὗ τὰ ὄντα εἶναί τε καὶ γεγονέναι. ὡς δ' αὕτως καὶ οἱ πλείω τὰ στοιχεῖα τιθέμενοι· ἀνάγκη γὰρ καὶ τούτοις τοσαῦτα λέγειν τὸ ἓν καὶ τὸ ὂν ὅσας περ ἀρχὰς εἶναί φασιν.

ENGLISH

Plato and the Pythagoreans hold that being and the one are not something else, but that this is their nature, as though their substance just were being one and being. The natural philosophers, on the other hand—Empedocles, for instance—say what the one is by referring it to something more intelligible. He would seem to say that it is Love (at any rate Love is the cause of all things' being one). Others say that this one and being, from which things are and have come to be, is fire; others that it is air. And it is the same with those who posit more elements; for they too must say that the one and being are as many as the principles they say there are.

συμβαίνει δέ, εἰ μέν τις μὴ θήσεται εἶναί τινα οὐσίαν τὸ ἓν καὶ τὸ ὄν, μηδὲ τῶν ἄλλων εἶναι τῶν καθόλου μηθέν (ταῦτα γάρ ἐστι καθόλου μάλιστα πάντων, εἰ δὲ μὴ ἔστι τι ἓν αὐτὸ μηδ' αὐτὸ ὄν, σχολῇ τῶν γε ἄλλων τι ἂν εἴη παρὰ τὰ λεγόμενα καθ' ἕκαστα), ἔτι δὲ μὴ ὄντος τοῦ ἑνὸς οὐσίας, δῆλον ὅτι οὐδ' ἂν ἀριθμὸς εἴη ὡς κεχωρισμένη τις φύσις τῶν ὄντων (ὁ μὲν γὰρ ἀριθμὸς μονάδες, ἡ δὲ μονὰς ὅπερ ἕν τί ἐστιν)· εἰ δ' ἔστι τι αὐτὸ ἓν καὶ ὄν, ἀναγκαῖον οὐσίαν αὐτῶν εἶναι τὸ ἓν καὶ τὸ ὄν· οὐ γὰρ ἕτερόν τι καθόλου κατηγορεῖται ἀλλὰ ταῦτα αὐτά.—ἀλλὰ μὴν εἴ γ' ἔσται τι αὐτὸ ὂν καὶ αὐτὸ ἕν, πολλὴ ἀπορία πῶς ἔσται τι παρὰ ταῦτα ἕτερον, λέγω δὲ πῶς ἔσται πλείω ἑνὸς τὰ ὄντα.

It follows that if one does not posit that the one and being are some substance, none of the other universals is a substance either (for these are the most universal of all, and if there is no one itself and no being itself, there could hardly be any of the others besides what are called particulars). Further, if the one is not a substance, clearly number too could not exist as a nature separate from things (for number is units, and a unit is precisely something one). But if there is a one itself and a being itself, their substance must be the one and being; for it is not something else that is predicated universally of them, but just these.—But then, if there is to be a being itself and a one itself, there is much puzzlement as to how there will be anything else besides these—I mean, how things will be more than one.

τὸ γὰρ ἕτερον τοῦ ὄντος οὐκ ἔστιν, ὥστε κατὰ τὸν Παρμενίδου συμβαίνειν ἀνάγκη λόγον ἓν ἅπαντα εἶναι τὰ ὄντα καὶ τοῦτο εἶναι τὸ ὄν. [1001b] ἀμφοτέρως δὲ δύσκολον· ἄν τε γὰρ μὴ ᾖ τὸ ἓν οὐσία ἄν τε ᾖ τὸ αὐτὸ ἕν, ἀδύνατον τὸν ἀριθμὸν οὐσίαν εἶναι. ἐὰν μὲν οὖν μὴ ᾖ, εἴρηται πρότερον δι' ὅ· ἐὰν δὲ ᾖ, ἡ αὐτὴ ἀπορία καὶ περὶ τοῦ ὄντος. ἐκ τίνος γὰρ παρὰ τὸ ἓν ἔσται αὐτὸ ἄλλο ἕν; ἀνάγκη γὰρ μὴ ἓν εἶναι· ἅπαντα δὲ τὰ ὄντα ἢ ἓν ἢ πολλὰ ὧν ἓν ἕκαστον.

For what is other than being is not; so it must follow, according to Parmenides' argument, that all things are one and that this is being. [1001b] Either way there is difficulty. Whether the one is not a substance or there is a one itself, number cannot be a substance. If the one is not a substance, we have already said why. And if it is, the same puzzle arises as with being: from what, besides the one itself, will there be another one? It must be not one; but all things are either one or many, each of which is one.

1001b ἔτι εἰ ἀδιαίρετον αὐτὸ τὸ ἕν, κατὰ μὲν τὸ Ζήνωνος ἀξίωμα οὐθὲν ἂν εἴη (ὃ γὰρ μήτε προστιθέμενον μήτε ἀφαιρούμενον ποιεῖ μεῖζον μηδὲ ἔλαττον, οὔ φησιν εἶναι τοῦτο τῶν ὄντων, ὡς δηλονότι ὄντος μεγέθους τοῦ ὄντος· καὶ εἰ μέγεθος, σωματικόν· τοῦτο γὰρ πάντῃ ὄν· τὰ δὲ ἄλλα πὼς μὲν προστιθέμενα ποιήσει μεῖζον, πὼς δ' οὐθέν, οἷον ἐπίπεδον καὶ γραμμή, στιγμὴ δὲ καὶ μονὰς οὐδαμῶς)·

Further, if the one itself is indivisible, by Zeno's axiom it would be nothing. For what makes a thing neither larger when added to it nor smaller when taken from it is not, he says, one of the things that are—evidently assuming that what is is a magnitude; and if a magnitude, a bodily one, since that has being in every dimension. The other

GREEK	ENGLISH
ἀλλ' ἐπειδὴ οὗτος θεωρεῖ φορτικῶς, καὶ ἐνδέχεται εἶναι ἀδιαίρετόν τι ὥστε [καὶ οὕτως] καὶ πρὸς ἐκεῖνόν τιν' ἀπολογίαν ἔχειν (μεῖζον μὲν γὰρ οὐ ποιήσει πλεῖον δὲ προστιθέμενον τὸ τοιοῦτον)·—ἀλλὰ πῶς δὴ ἐξ ἑνὸς τοιούτου ἢ πλειόνων τοιούτων ἔσται μέγεθος; ὅμοιον γὰρ καὶ τὴν γραμμὴν ἐκ στιγμῶν εἶναι φάσκειν.	magnitudes, when added, will make a thing larger in one way but not in another, as a plane and a line do; but a point and a unit will do so in no way. But since Zeno's approach is crude, and something indivisible can exist, so that there is a defense even against him (for such a thing, when added, will make a thing not larger but more)—still, how will magnitude come from one such thing, or from several? That would be like saying that a line is made of points.[3]
ἀλλὰ μὴν καὶ εἴ τις οὕτως ὑπολαμβάνει ὥστε γενέσθαι, καθάπερ λέγουσί τινες, ἐκ τοῦ ἑνὸς αὐτοῦ καὶ ἄλλου μὴ ἑνός τινος τὸν ἀριθμόν, οὐθὲν ἧττον ζητητέον διὰ τί καὶ πῶς ὁτὲ μὲν ἀριθμὸς ὁτὲ δὲ μέγεθος ἔσται τὸ γενόμενον, εἴπερ τὸ μὴ ἓν ἡ ἀνισότης καὶ ἡ αὐτὴ φύσις ἦν. οὔτε γὰρ ὅπως ἐξ ἑνὸς καὶ ταύτης οὔτε ὅπως ἐξ ἀριθμοῦ τινὸς καὶ ταύτης γένοιτ' ἂν τὰ μεγέθη, δῆλον.	But even if someone supposes, as some do, that number comes to be from the one itself and something else that is not one, we must still ask why and how what comes to be will sometimes be a number and sometimes a magnitude, if the not-one was inequality and the same nature in both cases. For it is not clear how magnitudes could come to be either from the one and this nature, or from some number and this nature.

ARE NUMBERS AND FIGURES SUBSTANCES?

Puzzles about whether bodies, surfaces, lines and points are substances.

GREEK	ENGLISH
τούτων δ' ἐχομένη ἀπορία πότερον οἱ ἀριθμοὶ καὶ τὰ σώματα καὶ τὰ ἐπίπεδα καὶ αἱ στιγμαὶ οὐσίαι τινές εἰσιν ἢ οὔ. εἰ μὲν γὰρ μή εἰσιν, διαφεύγει τί τὸ ὂν καὶ τίνες αἱ οὐσίαι τῶν ὄντων· τὰ μὲν γὰρ πάθη καὶ αἱ κινήσεις καὶ τὰ πρός τι καὶ αἱ διαθέσεις καὶ οἱ λόγοι οὐθενὸς δοκοῦσιν οὐσίαν σημαίνειν (λέγονται γὰρ πάντα καθ' ὑποκειμένου τινός, καὶ οὐθὲν τόδε τι)· ἃ δὲ μάλιστ' ἂν δόξειε σημαίνειν οὐσίαν, ὕδωρ καὶ γῆ καὶ πῦρ καὶ ἀήρ, ἐξ ὧν τὰ σύνθετα σώματα συνέστηκε, [1002a] τούτων θερμότητες μὲν καὶ ψυχρότητες καὶ τὰ τοιαῦτα πάθη, οὐκ οὐσίαι, τὸ δὲ σῶμα τὸ ταῦτα πεπονθὸς μόνον ὑπομένει ὡς ὄν τι καὶ οὐσία τις οὖσα.	Connected with these is the puzzle whether numbers, bodies, planes, and points are substances of some kind or not. If they are not, it escapes us what being is and what the substances of the things that are are. For attributes, motions, relations, dispositions, and ratios do not seem to signify the substance of anything, since they are all said of some underlying subject, and none of them is a "this." And as for the things that would seem most of all to signify substance—water, earth, fire, and air, of which composite bodies are made up— [1002a] their heat and cold and other such features are attributes, not substances, and only the body that has these attributes persists as something that is, and as a substance.
1002a ἀλλὰ μὴν τό γε σῶμα ἧττον οὐσία τῆς ἐπιφανείας, καὶ αὕτη τῆς γραμμῆς, καὶ αὕτη τῆς μονάδος καὶ τῆς στιγμῆς· τούτοις γὰρ ὥρισται τὸ σῶμα, καὶ τὰ μὲν ἄνευ σώματος ἐνδέχεσθαι δοκεῖ εἶναι τὸ δὲ σῶμα ἄνευ τούτων ἀδύνατον. διόπερ οἱ μὲν πολλοὶ καὶ οἱ πρότερον τὴν οὐσίαν καὶ τὸ ὂν ᾠοντο τὸ σῶμα εἶναι τὰ δὲ ἄλλα τούτου πάθη, ὥστε καὶ τὰς ἀρχὰς τὰς τῶν σωμάτων τῶν ὄντων εἶναι ἀρχάς· οἱ δ' ὕστεροι καὶ σοφώτεροι τούτων εἶναι	Yet body is less a substance than surface is, and surface less than line, and line less than unit and point; for body is bounded by these, and they seem capable of existing without body, whereas body cannot exist without them. That is why most people, and the earlier thinkers, thought that substance and being were body, and the other things were attributes of it, so that the principles of bod-

3 Zeno of Elea, a follower of Parmenides, was famous for paradoxes about plurality and motion.

GREEK

δόξαντες ἀριθμούς. καθάπερ οὖν εἴπομεν, εἰ μὴ ἔστιν οὐσία ταῦτα, ὅλως οὐδὲν ἐστὶν οὐσία οὐδὲ ὂν οὐθέν· οὐ γὰρ δὴ τά γε συμβεβηκότα τούτοις ἄξιον ὄντα καλεῖν.

—ἀλλὰ μὴν εἰ τοῦτο μὲν ὁμολογεῖται, ὅτι μᾶλλον οὐσία τὰ μήκη τῶν σωμάτων καὶ αἱ στιγμαί, ταῦτα δὲ μὴ ὁρῶμεν ποίων ἂν εἶεν σωμάτων (ἐν γὰρ τοῖς αἰσθητοῖς ἀδύνατον εἶναι), οὐκ ἂν εἴη οὐσία οὐδεμία. ἔτι δὲ φαίνεται ταῦτα πάντα διαιρέσεις ὄντα τοῦ σώματος, τὸ μὲν εἰς πλάτος τὸ δ' εἰς βάθος τὸ δ' εἰς μῆκος.

πρὸς δὲ τούτοις ὁμοίως ἔνεστιν ἐν τῷ στερεῷ ὁποιονοῦν σχῆμα· ὥστ' εἰ μηδ' ἐν τῷ λίθῳ Ἑρμῆς, οὐδὲ τὸ ἥμισυ τοῦ κύβου ἐν τῷ κύβῳ οὕτως ὡς ἀφωρισμένον· οὐκ ἄρα οὐδ' ἐπιφάνεια (εἰ γὰρ ὁποιαοῦν, κἂν αὕτη ἂν ἦν ἡ ἀφορίζουσα τὸ ἥμισυ), ὁ δ' αὐτὸς λόγος καὶ ἐπὶ γραμμῆς καὶ στιγμῆς καὶ μονάδος, ὥστ' εἰ μάλιστα μὲν οὐσία τὸ σῶμα, τούτου δὲ μᾶλλον ταῦτα, μὴ ἔστι δὲ ταῦτα μηδὲ οὐσίαι τινές, διαφεύγει τί τὸ ὂν καὶ τίς ἡ οὐσία τῶν ὄντων. πρὸς γὰρ τοῖς εἰρημένοις καὶ τὰ περὶ τὴν γένεσιν καὶ τὴν φθορὰν συμβαίνει ἄλογα.

δοκεῖ μὲν γὰρ ἡ οὐσία, ἐὰν μὴ οὖσα πρότερον νῦν ᾖ ἢ πρότερον οὖσα ὕστερον μὴ ᾖ, μετὰ τοῦ γίγνεσθαι καὶ φθείρεσθαι ταῦτα πάσχειν· τὰς δὲ στιγμὰς καὶ τὰς γραμμὰς καὶ τὰς ἐπιφανείας οὐκ ἐνδέχεται οὔτε γίγνεσθαι οὔτε φθείρεσθαι, ὁτὲ μὲν οὔσας ὁτὲ δὲ οὐκ οὔσας. ὅταν γὰρ ἅπτηται ἢ διαιρῆται τὰ σώματα, [1002b] ἅμα ὁτὲ μὲν μία ἁπτομένων ὁτὲ δὲ δύο διαιρουμένων γίγνονται· ὥστ' οὔτε συγκειμένων ἔστιν ἀλλ' ἔφθαρται, διῃρημένων τε εἰσὶν αἱ πρότερον οὐκ οὖσαι (οὐ γὰρ δὴ ἥ γ' ἀδιαίρετος στιγμὴ διῃρέθη εἰς δύο), εἴ τε γίγνονται καὶ φθείρονται, ἐκ τίνος γίγνονται; παραπλησίως δ' ἔχει καὶ περὶ τὸ νῦν τὸ ἐν τῷ χρόνῳ· οὐδὲ γὰρ τοῦτο ἐνδέχεται γίγνεσθαι καὶ φθείρεσθαι, ἀλλ' ὅμως ἕτερον ἀεὶ δοκεῖ εἶναι, οὐκ οὐσία τις οὖσα.

1002b

ENGLISH

ies were the principles of the things that are; whereas later thinkers, with a greater reputation for wisdom, thought they were numbers. So, as we said, if these are not substance, nothing at all is substance, and nothing is a being; for surely their incidental attributes do not deserve to be called beings.

—But if it is agreed that lengths and points are more substance than bodies are, but we do not see to what sort of bodies they would belong (for they cannot be in perceptible things), there would be no substance at all. Further, all of these appear to be divisions of body, one in breadth, another in depth, another in length.

Besides, any shape whatever is equally present in the solid. So if Hermes is not in the stone, neither is the half of the cube in the cube as something marked off. Nor, then, is a surface in it (for if any surface were, so would be the one that marks off the half); and the same argument applies to line, point, and unit. So if body is substance most of all, and these are more substance than body, but these do not exist and are not substances of any kind, it escapes us what being is and what the substance of the things that are is. For besides what has been said, the consequences concerning coming-to-be and perishing also turn out to be unreasonable.[4]

For substance, if it now is when it was not before, or later is not when it was before, seems to undergo this by coming to be and perishing. But points, lines, and surfaces cannot come to be or perish, even though they sometimes are and sometimes are not. For when bodies come into contact or are divided, [1002b] at that very moment one surface comes to be when they touch, and two when they are divided. So when the bodies have been put together the surface does not exist but has perished, and when they have been divided surfaces exist that did not exist before (for the indivisible point was certainly not divided into two). And if they do come to be and perish, from what do they come to be? It is much the same with the "now" in time: this too cannot come to be and perish, and yet it always seems to be different, not being a substance of any kind.

4 That is, the statue of Hermes a sculptor could carve from a block is not actually present in the uncarved stone.

GREEK	ENGLISH
ὁμοίως δὲ δῆλον ὅτι ἔχει καὶ περὶ τὰς στιγμὰς καὶ τὰς γραμμὰς καὶ τὰ ἐπίπεδα· ὁ γὰρ αὐτὸς λόγος· ἅπαντα γὰρ ὁμοίως ἢ πέρατα ἢ διαιρέσεις εἰσίν.	Clearly the same holds of points, lines, and planes, for the same argument applies: they are all alike either limits or divisions.

WHY POSIT FORMS?

Why posit Forms at all, and are principles potential or actual, universal or particular?

GREEK	ENGLISH
ὅλως δ' ἀπορήσειεν ἄν τις διὰ τί καὶ δεῖ ζητεῖν ἄλλ' ἄττα παρά τε τὰ αἰσθητὰ καὶ τὰ μεταξύ, οἷον ἃ τίθεμεν εἴδη. εἰ γὰρ διὰ τοῦτο, ὅτι τὰ μὲν μαθηματικὰ τῶν δεῦρο ἄλλῳ μέν τινι διαφέρει, τῷ δὲ πόλλ' ἄττα ὁμοειδῆ εἶναι οὐθὲν διαφέρει, ὥστ' οὐκ ἔσονται αὐτῶν αἱ ἀρχαὶ ἀριθμῷ ἀφωρισμέναι (ὥσπερ οὐδὲ τῶν ἐνταῦθα γραμμάτων ἀριθμῷ μὲν πάντων οὐκ εἰσὶν αἱ ἀρχαὶ ὡρισμέναι, εἴδει δέ, ἐὰν μὴ λαμβάνῃ τις τησδὶ τῆς συλλαβῆς ἢ τησδὶ τῆς φωνῆς· τούτων δ' ἔσονται καὶ ἀριθμῷ ὡρισμέναι—ὁμοίως δὲ καὶ ἐπὶ τῶν μεταξύ· ἄπειρα γὰρ κἀκεῖ τὰ ὁμοειδῆ), ὥστ' εἰ μὴ ἔστι παρὰ τὰ αἰσθητὰ καὶ τὰ μαθηματικὰ ἕτερ' ἄττα οἷα λέγουσι τὰ εἴδη τινές, οὐκ ἔσται μία ἀριθμῷ ἀλλ' εἴδει οὐσία, οὐδ' αἱ ἀρχαὶ τῶν ὄντων ἀριθμῷ ἔσονται ποσαί τινες ἀλλὰ εἴδει·—εἰ οὖν τοῦτο ἀναγκαῖον, καὶ τὰ εἴδη ἀναγκαῖον διὰ τοῦτο εἶναι τιθέναι.	In general, one might be puzzled as to why we need to look for other things besides both perceptible things and the intermediates—the Forms we posit, for instance. If it is because the mathematical objects, while they differ from the things here in some other respect, do not differ at all in there being many of the same kind, so that their principles will not be limited in number (just as the principles of all the letters here are not limited in number but in kind—unless one takes the principles of this particular syllable or this particular spoken sound, and these will be limited in number too; and similarly with the intermediates, since there too things of the same kind are infinite)—then if there are not, besides perceptible and mathematical things, certain other things such as some people call Forms, there will be no substance that is one in number, but only one in kind; nor will the principles of the things that are be of some definite number, but only of some definite number of kinds.—If this is necessary, then for this reason it is also necessary to posit that there are Forms.
καὶ γὰρ εἰ μὴ καλῶς διαρθροῦσιν οἱ λέγοντες, ἀλλ' ἔστι γε τοῦθ' ὃ βούλονται, καὶ ἀνάγκη ταῦτα λέγειν αὐτοῖς, ὅτι τῶν εἰδῶν οὐσία τις ἕκαστόν ἐστι καὶ οὐθὲν κατὰ συμβεβηκός.—ἀλλὰ μὴν εἴ γε θήσομεν τά τε εἴδη εἶναι καὶ ἓν ἀριθμῷ τὰς ἀρχὰς ἀλλὰ μὴ εἴδει, εἰρήκαμεν ἃ συμβαίνειν ἀναγκαῖον ἀδύνατα.—σύνεγγυς δὲ τούτων ἐστὶ τὸ διαπορῆσαι πότερον δυνάμει ἔστι τὰ στοιχεῖα ἤ τιν' ἕτερον τρόπον.	For even if those who say this do not articulate it well, this is what they mean, and they must say it: that each of the Forms is a substance, and none of them is so incidentally.—But if we posit both that the Forms exist and that the principles are one in number and not in kind, we have stated the impossible consequences that must follow.—Closely connected with these is the puzzle whether the elements exist potentially or in some other way.
εἰ μὲν γὰρ ἄλλως πως, πρότερόν τι ἔσται τῶν ἀρχῶν ἄλλο (πρότερον [1003a] γὰρ ἡ δύναμις ἐκείνης τῆς αἰτίας, τὸ δὲ δυνατὸν οὐκ ἀναγκαῖον ἐκείνως πᾶν ἔχειν)· εἰ δ' ἔστι δυνάμει τὰ στοιχεῖα, ἐνδέχεται μηθὲν εἶναι τῶν ὄντων· δυνατὸν γὰρ εἶναι καὶ τὸ μήπω ὄν· γίγνεται μὲν γὰρ τὸ μὴ ὄν, οὐθὲν δὲ γίγνεται τῶν εἶναι ἀδυνάτων.—ταύτας τε οὖν τὰς ἀπορίας ἀναγκαῖον ἀπορῆσαι περὶ τῶν ἀρχῶν, καὶ πότερον καθόλου εἰσὶν ἢ ὡς λέγομεν τὰ καθ' ἕκαστα.	If in some other way, there will be something else prior to the principles (for potentiality [1003a] is prior to that sort of cause, and not everything that is potential need be in that way). But if the elements exist potentially, it is possible that none of the things that are exists; for even what is not yet is capable of being. What is not comes to be, but nothing comes to be that is incapable of being.—These, then, are the puzzles we must raise about the prin-

	GREEK	ENGLISH
		ciples; and also whether they are universal or like what we call particulars.
1003a	εἰ μὲν γὰρ καθόλου, οὐκ ἔσονται οὐσίαι (οὐθὲν γὰρ τῶν κοινῶν τόδε τι σημαίνει ἀλλὰ τοιόνδε, ἡ δ' οὐσία τόδε τι· εἰ δ' ἔσται τόδε τι καὶ ἓν θέσθαι τὸ κοινῇ κατηγορούμενον, πολλὰ ἔσται ζῷα ὁ Σωκράτης, αὐτός τε καὶ ὁ ἄνθρωπος καὶ τὸ ζῷον, εἴπερ σημαίνει ἕκαστον τόδε τι καὶ ἕν)·—εἰ μὲν οὖν καθόλου αἱ ἀρχαί, ταῦτα συμβαίνει· εἰ δὲ μὴ καθόλου ἀλλ' ὡς τὰ καθ' ἕκαστα, οὐκ ἔσονται ἐπιστηταί (καθόλου γὰρ ἡ ἐπιστήμη πάντων), ὥστ' ἔσονται ἀρχαὶ ἕτεραι πρότεραι τῶν ἀρχῶν αἱ καθόλου κατηγορούμεναι, ἄνπερ μέλλῃ ἔσεσθαι αὐτῶν ἐπιστήμη.	If they are universal, they will not be substances. (For nothing common signifies a "this," but a "such," whereas substance is a "this." And if what is predicated in common can be posited as a "this" and one, Socrates will be several animals—himself, and human being, and animal—if each of these signifies a "this" and one.)—These are the consequences if the principles are universal. But if they are not universal but are like particulars, they will not be knowable (for scientific knowledge of anything is universal); so there will be other principles prior to the principles, predicated universally, if there is to be scientific knowledge of them.

Book Gamma (IV)

Being qua being and the principle of non-contradiction.

THE SCIENCE OF BEING QUA BEING

There is a science that studies being as being and what belongs to it in its own right.

GREEK

ἔστιν ἐπιστήμη τις ἣ θεωρεῖ τὸ ὂν ᾗ ὂν καὶ τὰ τούτῳ ὑπάρχοντα καθ' αὑτό. αὕτη δ' ἐστὶν οὐδεμιᾷ τῶν ἐν μέρει λεγομένων ἡ αὐτή· οὐδεμία γὰρ τῶν ἄλλων ἐπισκοπεῖ καθόλου περὶ τοῦ ὄντος ᾗ ὄν, ἀλλὰ μέρος αὐτοῦ τι ἀποτεμόμεναι περὶ τούτου θεωροῦσι τὸ συμβεβηκός, οἷον αἱ μαθηματικαὶ τῶν ἐπιστημῶν. ἐπεὶ δὲ τὰς ἀρχὰς καὶ τὰς ἀκροτάτας αἰτίας ζητοῦμεν, δῆλον ὡς φύσεώς τινος αὐτὰς ἀναγκαῖον εἶναι καθ' αὑτήν. εἰ οὖν καὶ οἱ τὰ στοιχεῖα τῶν ὄντων ζητοῦντες ταύτας τὰς ἀρχὰς ἐζήτουν, ἀνάγκη καὶ τὰ στοιχεῖα τοῦ ὄντος εἶναι μὴ κατὰ συμβεβηκὸς ἀλλ' ᾗ ὄν· διὸ καὶ ἡμῖν τοῦ ὄντος ᾗ ὂν τὰς πρώτας αἰτίας ληπτέον.

ENGLISH

There is a science that studies being qua being, and the attributes that belong to it in its own right. It is not the same as any of the so-called special sciences; for none of the others examines being qua being universally, but each cuts off some part of it and studies the attributes of that part, as the mathematical sciences do, for instance. Now since we are seeking the principles and the highest causes, clearly they must belong to some nature in its own right. If, then, those who sought the elements of the things that are were also seeking these principles, the elements too must be elements of being, not incidentally but qua being. That is why we too must grasp the first causes of being qua being.[1]

BEING IS SAID IN MANY WAYS

Being is always said with reference to substance, so one science studies being, unity and their opposites.

GREEK

τὸ δὲ ὂν λέγεται μὲν πολλαχῶς, ἀλλὰ πρὸς ἓν καὶ μίαν τινὰ φύσιν καὶ οὐχ ὁμωνύμως ἀλλ' ὥσπερ καὶ τὸ ὑγιεινὸν ἅπαν πρὸς ὑγίειαν, τὸ μὲν τῷ φυλάττειν τὸ δὲ τῷ ποιεῖν τὸ δὲ τῷ σημεῖον εἶναι τῆς ὑγιείας τὸ δ' ὅτι δεκτικὸν αὐτῆς, [1003b] καὶ τὸ ἰατρικὸν πρὸς ἰατρικήν (τὸ μὲν γὰρ τῷ ἔχειν ἰατρικὴν λέγεται ἰατρικὸν τὸ δὲ τῷ εὐφυὲς εἶναι πρὸς αὐτὴν τὸ δὲ τῷ ἔργον εἶναι τῆς ἰατρικῆς), ὁμοιοτρόπως δὲ καὶ ἄλλα ληψόμεθα λεγόμενα τούτοις,— οὕτω δὲ καὶ τὸ ὂν λέγεται πολλαχῶς μὲν ἀλλ' ἅπαν πρὸς μίαν ἀρχήν· τὰ μὲν γὰρ ὅτι οὐσίαι, ὄντα λέγεται, τὰ δ' ὅτι πάθη οὐσίας, τὰ δ' ὅτι ὁδὸς εἰς οὐσίαν ἢ φθοραὶ ἢ στερήσεις ἢ ποιότητες ἢ ποιητικὰ ἢ γεννητικὰ οὐσίας ἢ τῶν πρὸς τὴν οὐσίαν λεγομένων, ἢ τούτων τινὸς ἀποφάσεις ἢ οὐσίας· διὸ καὶ τὸ μὴ ὂν εἶναι μὴ ὄν φαμεν.

ENGLISH

Being is said in many ways, but always with reference to one thing, a single nature, and not by mere coincidence of name. It is like the way everything healthy is related to health—one thing by preserving it, another by producing it, another by being a sign of it, another by being capable of receiving it— [1003b] and the way the medical is related to medicine: one thing is called medical because it possesses the art of medicine, another because it is naturally suited to it, another because it is a work of medicine. And we will find other words used in a way similar to these. In just this way, being too is said in many ways, but all with reference to one principle. Some things are called beings because they are substances, others because they are attributes of substance, others because they are a

1 "Qua" means "as" or "insofar as it is": being studied simply as being, not as number, living thing, and so on.

GREEK

ENGLISH

route to substance, or destructions or privations or qualities of substance, or productive or generative of substance or of things said with reference to substance, or negations of one of these or of substance. That is why we even say that what is not *is* what is not.

1003b καθάπερ οὖν καὶ τῶν ὑγιεινῶν ἁπάντων μία ἐπιστήμη ἔστιν, ὁμοίως τοῦτο καὶ ἐπὶ τῶν ἄλλων. οὐ γὰρ μόνον τῶν καθ' ἓν λεγομένων ἐπιστήμης ἐστὶ θεωρῆσαι μιᾶς ἀλλὰ καὶ τῶν πρὸς μίαν λεγομένων φύσιν· καὶ γὰρ ταῦτα τρόπον τινὰ λέγονται καθ' ἕν. δῆλον οὖν ὅτι καὶ τὰ ὄντα μιᾶς θεωρῆσαι ᾗ ὄντα. πανταχοῦ δὲ κυρίως τοῦ πρώτου ἡ ἐπιστήμη, καὶ ἐξ οὗ τὰ ἄλλα ἤρτηται, καὶ δι' ὃ λέγονται. εἰ οὖν τοῦτ' ἐστὶν ἡ οὐσία, τῶν οὐσιῶν ἂν δέοι τὰς ἀρχὰς καὶ τὰς αἰτίας ἔχειν τὸν φιλόσοφον.—ἅπαντος δὲ γένους καὶ αἴσθησις μία ἑνὸς καὶ ἐπιστήμη, οἷον γραμματικὴ μία οὖσα πάσας θεωρεῖ τὰς φωνάς· διὸ καὶ τοῦ ὄντος ᾗ ὂν ὅσα εἴδη θεωρῆσαι μιᾶς ἐστὶν ἐπιστήμης τῷ γένει, τά τε εἴδη τῶν εἰδῶν.

Just as there is one science of all healthy things, so too in the other cases. For it belongs to one science to study not only things said according to one common meaning, but also things said with reference to one nature; for these too are in a way said according to one meaning. Clearly, then, it belongs to one science to study the things that are qua things that are. But in every case a science is chiefly of what is primary, that on which the other things depend and through which they get their names. If, then, this is substance, it is of substances that the philosopher must grasp the principles and the causes.—For every genus there is one perception and one science, of one thing: grammar, for instance, being one science, studies all spoken sounds. That is why it belongs to a science one in genus to study all the species of being qua being, and the species of those species.

εἰ δὴ τὸ ὂν καὶ τὸ ἓν ταὐτὸν καὶ μία φύσις τῷ ἀκολουθεῖν ἀλλήλοις ὥσπερ ἀρχὴ καὶ αἴτιον, ἀλλ' οὐχ ὡς ἑνὶ λόγῳ δηλούμενα (διαφέρει δὲ οὐθὲν οὐδ' ἂν ὁμοίως ὑπολάβωμεν, ἀλλὰ καὶ πρὸ ἔργου μᾶλλον)· ταὐτὸ γὰρ εἷς ἄνθρωπος καὶ ἄνθρωπος, καὶ ὢν ἄνθρωπος καὶ ἄνθρωπος, καὶ οὐχ ἕτερόν τι δηλοῖ κατὰ τὴν λέξιν ἐπαναδιπλούμενον τὸ εἷς ἄνθρωπος καὶ εἷς ὢν ἄνθρωπος (δῆλον δ' ὅτι οὐ χωρίζεται οὔτ' ἐπὶ γενέσεως οὔτ' ἐπὶ φθορᾶς), ὁμοίως δὲ καὶ ἐπὶ τοῦ ἑνός, ὥστε φανερὸν ὅτι ἡ πρόσθεσις ἐν τούτοις ταὐτὸ δηλοῖ, καὶ οὐδὲν ἕτερον τὸ ἓν παρὰ τὸ ὄν, ἔτι δ' ἡ ἑκάστου οὐσία ἕν ἐστιν οὐ κατὰ συμβεβηκός, ὁμοίως δὲ καὶ ὅπερ ὄν τι·—ὥσθ' ὅσα περ τοῦ ἑνὸς εἴδη, τοσαῦτα καὶ τοῦ ὄντος· περὶ ὧν τὸ τί ἐστι τῆς αὐτῆς ἐπιστήμης τῷ γένει θεωρῆσαι, λέγω δ' οἷον περὶ ταὐτοῦ καὶ ὁμοίου καὶ τῶν ἄλλων τῶν τοιούτων.

Now suppose that being and the one are the same, a single nature, in that they go together as principle and cause do, though not in that they are made clear by a single account (though it makes no difference even if we take them to be alike in this too; that would rather help our task). For "one human being" and "human being" are the same, and so are "existing human being" and "human being"; and doubling the phrase to "one human being" and "one existing human being" does not make clear anything different (clearly they are not separated either in coming-to-be or in perishing), and similarly with "one." So it is evident that the addition in these cases makes clear the same thing, and that the one is nothing different besides being. Further, the substance of each thing is one, and not incidentally; and likewise it is precisely something that is.—It follows that there are as many species of being as there are of the one; and it belongs to the same science, one in genus, to study what these are—I mean, for instance, same and similar and the other such things.

σχεδὸν δὲ πάντα ἀνάγεται τἀναντία εἰς τὴν ἀρχὴν ταύτην· 1004a τεθεωρήσθω δ' ἡμῖν ταῦτα ἐν τῇ ἐκλογῇ τῶν ἐναντίων. καὶ τοσαῦτα μέρη φιλοσοφίας ἔστιν ὅσαι περ αἱ

Nearly all contraries are traced back to this principle; 1004a let us take these matters as having been studied in our *Selection of Contraries*. And there are

GREEK

οὐσίαι· ὥστε ἀναγκαῖον εἶναί τινα πρώτην καὶ ἐχομένην αὐτῶν. ὑπάρχει γὰρ εὐθὺς γένη ἔχον τὸ ὂν [καὶ τὸ ἕν]· διὸ καὶ αἱ ἐπιστῆμαι ἀκολουθήσουσι τούτοις.

1004a ἔστι γὰρ ὁ φιλόσοφος ὥσπερ ὁ μαθηματικὸς λεγόμενος· καὶ γὰρ αὕτη ἔχει μέρη, καὶ πρώτη τις καὶ δευτέρα ἔστιν ἐπιστήμη καὶ ἄλλαι ἐφεξῆς ἐν τοῖς μαθήμασιν.—ἐπεὶ δὲ μιᾶς τἀντικείμενα θεωρῆσαι, τῷ δὲ ἑνὶ ἀντίκειται πλῆθος —ἀπόφασιν δὲ καὶ στέρησιν μιᾶς ἐστὶ θεωρῆσαι διὰ τὸ ἀμφοτέρως θεωρεῖσθαι τὸ ἓν οὗ ἡ ἀπόφασις ἢ ἡ στέρησις (ἢ ⟨γὰρ⟩ ἁπλῶς λέγομεν ὅτι οὐχ ὑπάρχει ἐκεῖνο, ἤ τινι γένει· ἔνθα μὲν οὖν †τῷ ἑνὶ ἡ διαφορὰ πρόσεστι παρὰ τὸ ἐν τῇ ἀποφάσει†, ἀπουσία γὰρ ἡ ἀπόφασις ἐκείνου ἐστίν, ἐν δὲ τῇ στερήσει καὶ ὑποκειμένη τις φύσις γίγνεται καθ' ἧς λέγεται ἡ στέρησις) [τῷ δ' ἑνὶ πλῆθος ἀντίκειται]— ὥστε καὶ τἀντικείμενα τοῖς εἰρημένοις, τό τε ἕτερον καὶ ἀνόμοιον καὶ ἄνισον καὶ ὅσα ἄλλα λέγεται ἢ κατὰ ταῦτα ἢ κατὰ πλῆθος καὶ τὸ ἕν, τῆς εἰρημένης γνωρίζειν ἐπιστήμης· ὧν ἐστὶ καὶ ἡ ἐναντιότης· διαφορὰ γάρ τις ἡ ἐναντιότης, ἡ δὲ διαφορὰ ἑτερότης.

ὥστ' ἐπειδὴ πολλαχῶς τὸ ἓν λέγεται, καὶ ταῦτα πολλαχῶς μὲν λεχθήσεται, ὅμως δὲ μιᾶς ἅπαντά ἐστι γνωρίζειν· οὐ γὰρ εἰ πολλαχῶς, ἑτέρας, ἀλλ' εἰ μήτε καθ' ἓν μήτε πρὸς ἓν οἱ λόγοι ἀναφέρονται. ἐπεὶ δὲ πάντα πρὸς τὸ πρῶτον ἀναφέρεται, οἷον ὅσα ἓν λέγεται πρὸς τὸ πρῶτον ἕν, ὡσαύτως φατέον καὶ περὶ ταὐτοῦ καὶ ἑτέρου καὶ τῶν ἐναντίων ἔχειν· ὥστε διελόμενον ποσαχῶς λέγεται ἕκαστον, οὕτως ἀποδοτέον πρὸς τὸ πρῶτον ἐν ἑκάστῃ κατηγορίᾳ πῶς πρὸς ἐκεῖνο λέγεται· τὰ μὲν γὰρ τῷ ἔχειν ἐκεῖνο τὰ δὲ τῷ ποιεῖν τὰ δὲ κατ' ἄλλους λεχθήσεται τοιούτους τρόπους.—φανερὸν οὖν [ὅπερ ἐν ταῖς ἀπορίαις ἐλέχθη] ὅτι μιᾶς περὶ τούτων καὶ τῆς οὐσίας ἐστὶ λόγον ἔχειν (τοῦτο δ' ἦν ἓν τῶν ἐν τοῖς ἀπορήμασιν), καὶ ἔστι τοῦ φιλοσόφου περὶ πάντων δύνασθαι θεωρεῖν.

ENGLISH

as many parts of philosophy as there are kinds of substance, so that there must be a first philosophy and one that follows it. For being falls directly into genera; that is why the sciences too will correspond to these.[2]

For the philosopher is like the one we call the mathematician: mathematics too has parts, and within mathematics there is a first science and a second, and others following in order.—Now it belongs to one science to study opposites, and plurality is opposed to the one. And it belongs to one science to study negation and privation, because in both cases one is studying the one thing of which there is negation or privation. (For we say either simply that that thing does not belong, or that it does not belong to some genus; in the latter case a differentia is added, over and above what the negation contains; for negation is just the absence of that thing, whereas in privation there is also some underlying nature of which the privation is asserted.) It follows that the opposites of the things mentioned—the other, the unlike, the unequal, and whatever else is said either with reference to these or with reference to plurality and the one—belong to the science we have mentioned to know. Contrariety is one of these; for contrariety is a kind of difference, and difference is a kind of otherness.[3]

So, since "one" is said in many ways, these too will be said in many ways; but all the same it belongs to one science to know them all. For things do not belong to different sciences if they are said in many ways, but only if their accounts are neither according to one thing nor referred to one thing. And since everything is referred to what is primary—for instance, whatever is called one is referred to the primary one—we must say that the same holds for same and other and the contraries. So, having distinguished in how many ways each is said, we must then explain, with reference to what is primary in each category, how each is said in relation to it: some things will be so called because they possess it, others because they produce it, others in other such ways.—It is evident, then, that it belongs to one science to give an account of these things and of substance (this was one of the

2 The *Selection of Contraries* is a lost work of Aristotle's.
3 The Greek of this clause is corrupt; the translation gives the probable sense.

GREEK

ENGLISH

εἰ γὰρ μὴ τοῦ φιλοσόφου, τίς ἔσται ὁ ἐπισκεψόμενος εἰ ταὐτὸ Σωκράτης καὶ Σωκράτης καθήμενος, ἢ εἰ ἓν ἑνὶ ἐναντίον, ἢ τί ἐστι τὸ ἐναντίον ἢ ποσαχῶς λέγεται; ὁμοίως δὲ καὶ περὶ τῶν ἄλλων τῶν τοιούτων. ἐπεὶ οὖν τοῦ ἑνὸς ᾗ ἓν καὶ τοῦ ὄντος ᾗ ὂν ταῦτα καθ' αὑτά ἐστι πάθη, ἀλλ' οὐχ ᾗ ἀριθμοὶ ἢ γραμμαὶ ἢ πῦρ, δῆλον ὡς ἐκείνης τῆς ἐπιστήμης καὶ τί ἐστι γνωρίσαι καὶ τὰ συμβεβηκότ' αὐτοῖς.

1004b

questions raised in the puzzles), and that it is the philosopher's task to be able to study all things.

For if it is not the philosopher's, who will be the one to examine whether Socrates and Socrates seated are the same, or whether one thing has one contrary, or what a contrary is, or in how many ways it is said? And similarly with other such questions. Since, then, these are attributes in their own right of the one qua one and of being qua being, and not qua numbers or lines or fire, clearly it belongs to that science to know both what they are and their attributes.

καὶ οὐ ταύτῃ ἁμαρτάνουσιν οἱ περὶ αὐτῶν σκοπούμενοι ὡς οὐ φιλοσοφοῦντες, ἀλλ' ὅτι πρότερον ἡ οὐσία, περὶ ἧς οὐθὲν ἐπαΐουσιν, ἐπεὶ ὥσπερ ἔστι καὶ ἀριθμοῦ ᾗ ἀριθμὸς ἴδια πάθη, οἷον περιττότης ἀρτιότης, συμμετρία ἰσότης, ὑπεροχὴ ἔλλειψις, καὶ ταῦτα καὶ καθ' αὑτοὺς καὶ πρὸς ἀλλήλους ὑπάρχει τοῖς ἀριθμοῖς (ὁμοίως δὲ καὶ στερεῷ καὶ ἀκινήτῳ καὶ κινουμένῳ ἀβαρεῖ τε καὶ βάρος ἔχοντι ἔστιν ἕτερα ἴδια), οὕτω καὶ τῷ ὄντι ᾗ ὂν ἔστι τινὰ ἴδια, καὶ ταῦτ' ἐστὶ περὶ ὧν τοῦ φιλοσόφου ἐπισκέψασθαι τὸ ἀληθές.

Those who inquire into these things do not go wrong by not doing philosophy, but because substance, of which they understand nothing, is prior. For just as number qua number has its own distinctive attributes—oddness and evenness, commensurability and equality, excess and deficiency—and these belong to numbers both in themselves and in relation to one another (and similarly the solid, the unmoving and the moving, the weightless and the heavy, have other distinctive attributes), so too being qua being has certain distinctive attributes, and it is about these that it is the philosopher's task to investigate the truth.

σημεῖον δέ· οἱ γὰρ διαλεκτικοὶ καὶ σοφισταὶ τὸ αὐτὸ μὲν ὑποδύονται σχῆμα τῷ φιλοσόφῳ· ἡ γὰρ σοφιστικὴ φαινομένη μόνον σοφία ἐστί, καὶ οἱ διαλεκτικοὶ διαλέγονται περὶ ἁπάντων, κοινὸν δὲ πᾶσι τὸ ὄν ἐστιν, διαλέγονται δὲ περὶ τούτων δῆλον ὅτι διὰ τὸ τῆς φιλοσοφίας ταῦτα εἶναι οἰκεῖα. περὶ μὲν γὰρ τὸ αὐτὸ γένος στρέφεται ἡ σοφιστικὴ καὶ ἡ διαλεκτικὴ τῇ φιλοσοφίᾳ, ἀλλὰ διαφέρει τῆς μὲν τῷ τρόπῳ τῆς δυνάμεως, τῆς δὲ τοῦ βίου τῇ προαιρέσει· ἔστι δὲ ἡ διαλεκτικὴ πειραστικὴ περὶ ὧν ἡ φιλοσοφία γνωριστική, ἡ δὲ σοφιστικὴ φαινομένη, οὖσα δ' οὔ.

Here is an indication. Dialecticians and sophists put on the same guise as the philosopher. For sophistry is wisdom in appearance only; and dialecticians argue about everything, and being is common to everything; clearly they argue about these matters because they properly belong to philosophy. Sophistry and dialectic are concerned with the same genus as philosophy, but philosophy differs from dialectic in the kind of capacity it has, and from sophistry in its decision about how to live. Dialectic puts to the test what philosophy knows; sophistry seems to be philosophy, but is not.

ἔτι τῶν ἐναντίων ἡ ἑτέρα συστοιχία στέρησις, καὶ πάντα ἀνάγεται εἰς τὸ ὂν καὶ τὸ μὴ ὄν, καὶ εἰς ἓν καὶ πλῆθος, οἷον στάσις τοῦ ἑνὸς κίνησις δὲ τοῦ πλήθους· τὰ δ' ὄντα καὶ τὴν οὐσίαν ὁμολογοῦσιν ἐξ ἐναντίων σχεδὸν ἅπαντες συγκεῖσθαι· πάντες γοῦν τὰς ἀρχὰς ἐναντίας λέγουσιν· οἱ μὲν γὰρ περιττὸν καὶ ἄρτιον, οἱ δὲ θερμὸν καὶ ψυχρόν, οἱ δὲ πέρας καὶ ἄπειρον, οἱ δὲ φιλίαν καὶ νεῖκος. πάντα δὲ καὶ τἆλλα ἀναγόμενα φαίνεται εἰς τὸ ἓν καὶ πλῆθος (εἰλήφθω γὰρ ἡ ἀναγωγὴ ἡμῖν), 1005a αἱ δ' ἀρχαὶ καὶ παντελῶς αἱ παρὰ τῶν ἄλλων ὡς εἰς γένη ταῦτα

Further, one of the two columns of contraries is privation, and all contraries are traced back to being and not-being, and to the one and plurality—rest, for instance, to the one, and motion to plurality. And nearly everyone agrees that the things that are, and substance, are composed of contraries; at any rate they all say the principles are contraries—some say odd and even, some hot and cold, some limit and unlimited, some Love and Strife. And all the other contraries too are evid-

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πίπτουσιν. φανερὸν οὖν καὶ ἐκ τούτων ὅτι μιᾶς ἐπιστήμης τὸ ὂν ᾗ ὂν θεωρῆσαι.	ently traced back to the one and plurality (let us take the reduction as given), [1005a] and the principles put forward by the others fall entirely under these as their genera. So it is evident from these considerations too that it belongs to one science to study being qua being.
1005a πάντα γὰρ ἢ ἐναντία ἢ ἐξ ἐναντίων, ἀρχαὶ δὲ τῶν ἐναντίων τὸ ἓν καὶ πλῆθος. ταῦτα δὲ μιᾶς ἐπιστήμης, εἴτε καθ' ἓν λέγεται εἴτε μή, ὥσπερ ἴσως ἔχει καὶ τἀληθές. ἀλλ' ὅμως εἰ καὶ πολλαχῶς λέγεται τὸ ἕν, πρὸς τὸ πρῶτον τἆλλα λεχθήσεται καὶ τὰ ἐναντία ὁμοίως, [καὶ διὰ τοῦτο] καὶ εἰ μὴ ἔστι τὸ ὂν ἢ τὸ ἓν καθόλου καὶ ταὐτὸ ἐπὶ πάντων ἢ χωριστόν, ὥσπερ ἴσως οὐκ ἔστιν ἀλλὰ τὰ μὲν πρὸς ἓν τὰ δὲ τῷ ἐφεξῆς. καὶ διὰ τοῦτο οὐ τοῦ γεωμέτρου θεωρῆσαι τί τὸ ἐναντίον ἢ τέλειον ἢ ἓν ἢ ὂν ἢ ταὐτὸν ἢ ἕτερον, ἀλλ' ἢ ἐξ ὑποθέσεως.	For all things are either contraries or composed of contraries, and the principles of the contraries are the one and plurality. These belong to one science, whether they are said according to one common meaning or not—and perhaps the truth is that they are not. Yet even if "one" is said in many ways, the other senses will be said with reference to the primary one, and so will the contraries—even if being or the one is not a universal, the same over all things, or separable, as perhaps it is not, but some things are called so by reference to one thing and others by being next in a series. That is why it is not the geometer's task to study what the contrary is, or the complete, or one, or being, or same, or other, except on the basis of a hypothesis.
ὅτι μὲν οὖν μιᾶς ἐπιστήμης τὸ ὂν ᾗ ὂν θεωρῆσαι καὶ τὰ ὑπάρχοντα αὐτῷ ᾗ ὄν, δῆλον, καὶ ὅτι οὐ μόνον τῶν οὐσιῶν ἀλλὰ καὶ τῶν ὑπαρχόντων ἡ αὐτὴ θεωρητική, τῶν τε εἰρημένων καὶ περὶ προτέρου καὶ ὑστέρου, καὶ γένους καὶ εἴδους, καὶ ὅλου καὶ μέρους καὶ τῶν ἄλλων τῶν τοιούτων.	It is clear, then, that it belongs to one science to study being qua being and the attributes that belong to it qua being; and that the same science studies not only substances but also what belongs to them—both the things mentioned and prior and posterior, genus and species, whole and part, and the others of this kind.

THE PRINCIPLE OF NON-CONTRADICTION

The philosopher studies the axioms, the most certain being that nothing can both be and not be.

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λεκτέον δὲ πότερον μιᾶς ἢ ἑτέρας ἐπιστήμης περί τε τῶν ἐν τοῖς μαθήμασι καλουμένων ἀξιωμάτων καὶ περὶ τῆς οὐσίας. φανερὸν δὴ ὅτι μιᾶς τε καὶ τῆς τοῦ φιλοσόφου καὶ ἡ περὶ τούτων ἐστὶ σκέψις· ἅπασι γὰρ ὑπάρχει τοῖς οὖσιν ἀλλ' οὐ γένει τινὶ χωρὶς ἰδίᾳ τῶν ἄλλων. καὶ χρῶνται μὲν πάντες, ὅτι τοῦ ὄντος ἐστὶν ᾗ ὄν, ἕκαστον δὲ τὸ γένος ὄν· ἐπὶ τοσοῦτον δὲ χρῶνται ἐφ' ὅσον αὐτοῖς ἱκανόν, τοῦτο δ' ἔστιν ὅσον ἐπέχει τὸ γένος περὶ οὗ φέρουσι τὰς ἀποδείξεις· ὥστ' ἐπεὶ δῆλον ὅτι ᾗ ὄντα ὑπάρχει πᾶσι (τοῦτο γὰρ αὐτοῖς τὸ κοινόν), τοῦ περὶ τὸ ὂν ᾗ ὂν γνωρίζοντος καὶ περὶ τούτων ἐστὶν ἡ θεωρία.	We must say whether it belongs to one science or to different ones to deal with what in mathematics are called axioms and with substance. Evidently the inquiry into these too belongs to one science, the philosopher's. For they hold of all things that are, not of some one genus separately, apart from the others. Everyone uses them, because they belong to being qua being, and each genus is a being. But people use them only as far as suits their purpose—that is, as far as the genus extends about which they are carrying out their proofs. So since it is clear that they belong to all things qua beings (for this is what is common to them), the study of them too belongs to the one who knows about being qua being.

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	διόπερ οὐθεὶς τῶν κατὰ μέρος ἐπισκοπούντων ἐγχειρεῖ λέγειν τι περὶ αὐτῶν, εἰ ἀληθῆ ἢ μή, οὔτε γεωμέτρης οὔτ' ἀριθμητικός, ἀλλὰ τῶν φυσικῶν ἔνιοι, εἰκότως τοῦτο δρῶντες· μόνοι γὰρ ᾤοντο περί τε τῆς ὅλης φύσεως σκοπεῖν καὶ περὶ τοῦ ὄντος. ἐπεὶ δ' ἔστιν ἔτι τοῦ φυσικοῦ τις ἀνωτέρω (ἓν γάρ τι γένος τοῦ ὄντος ἡ φύσις), τοῦ καθόλου καὶ τοῦ περὶ τὴν πρώτην οὐσίαν θεωρητικοῦ καὶ ἡ περὶ τούτων ἂν εἴη σκέψις· [1005b] ἔστι δὲ σοφία τις καὶ ἡ φυσική, ἀλλ' οὐ πρώτη.	That is why none of those whose inquiry is limited to a special field—neither the geometer nor the arithmetician—tries to say anything about them, whether they are true or not. Some of the natural philosophers do, and understandably so, since they alone thought they were inquiring about the whole of nature and about being. But since there is someone still higher than the natural philosopher (for nature is only one genus of being), the inquiry into these axioms too would belong to the one who studies the universal and primary substance. [1005b] Natural science is also a kind of wisdom, but not the first.
1005b	ὅσα δ' ἐγχειροῦσι τῶν λεγόντων τινὲς περὶ τῆς ἀληθείας ὃν τρόπον δεῖ ἀποδέχεσθαι, δι' ἀπαιδευσίαν τῶν ἀναλυτικῶν τοῦτο δρῶσιν· δεῖ γὰρ περὶ τούτων ἥκειν προεπισταμένους ἀλλὰ μὴ ἀκούοντας ζητεῖν.—ὅτι μὲν οὖν τοῦ φιλοσόφου, καὶ τοῦ περὶ πάσης τῆς οὐσίας θεωροῦντος ᾗ πέφυκεν, καὶ περὶ τῶν συλλογιστικῶν ἀρχῶν ἐστὶν ἐπισκέψασθαι, δῆλον· προσήκει δὲ τὸν μάλιστα γνωρίζοντα περὶ ἕκαστον γένος ἔχειν λέγειν τὰς βεβαιοτάτας ἀρχὰς τοῦ πράγματος, ὥστε καὶ τὸν περὶ τῶν ὄντων ᾗ ὄντα τὰς πάντων βεβαιοτάτας. ἔστι δ' οὗτος ὁ φιλόσοφος. βεβαιοτάτη δ' ἀρχὴ πασῶν περὶ ἣν διαψευσθῆναι ἀδύνατον· γνωριμωτάτην τε γὰρ ἀναγκαῖον εἶναι τὴν τοιαύτην (περὶ γὰρ ἃ μὴ γνωρίζουσιν ἀπατῶνται πάντες) καὶ ἀνυπόθετον.	The attempts that some of those who discuss truth make to say how it should be accepted are due to their lack of training in analytics; people should come to these matters already knowing about them, not inquire into them while listening to lectures.—It is clear, then, that it belongs to the philosopher, the one who studies all substance in its nature, to investigate the principles of deduction as well. It is fitting that the one who knows most about each genus should be able to state the most certain principles of that subject, so that the one who knows about the things that are qua things that are should be able to state the most certain principles of all. This is the philosopher. And the most certain principle of all is the one about which it is impossible to be mistaken. Such a principle must be the best known (for people are always deceived about things they do not know) and not hypothetical.[4]
	ἣν γὰρ ἀναγκαῖον ἔχειν τὸν ὁτιοῦν ξυνιέντα τῶν ὄντων, τοῦτο οὐχ ὑπόθεσις· ὃ δὲ γνωρίζειν ἀναγκαῖον τῷ ὁτιοῦν γνωρίζοντι, καὶ ἥκειν ἔχοντα ἀναγκαῖον. ὅτι μὲν οὖν βεβαιοτάτη ἡ τοιαύτη πασῶν ἀρχή, δῆλον· τίς δ' ἔστιν αὕτη, μετὰ ταῦτα λέγωμεν. τὸ γὰρ αὐτὸ ἅμα ὑπάρχειν τε καὶ μὴ ὑπάρχειν ἀδύνατον τῷ αὐτῷ καὶ κατὰ τὸ αὐτό (καὶ ὅσα ἄλλα προσδιορισαίμεθ' ἄν, ἔστω προσδιωρισμένα πρὸς τὰς λογικὰς δυσχερείας)· αὕτη δὴ πασῶν ἐστὶ βεβαιοτάτη τῶν ἀρχῶν· ἔχει γὰρ τὸν εἰρημένον διορισμόν. ἀδύνατον γὰρ ὀντινοῦν ταὐτὸν ὑπολαμβάνειν εἶναι καὶ μὴ εἶναι, καθάπερ τινὲς οἴονται λέγειν Ἡράκλειτον.	For a principle that anyone must have who understands anything at all is not a hypothesis; and what anyone must know who knows anything at all, he must already have when he comes to the inquiry. Clearly, then, such a principle is the most certain of all. What it is, let us say next. It is impossible for the same thing at the same time both to belong and not to belong to the same thing in the same respect (and let whatever further qualifications we might add be taken as added, to meet logical objections). This, then, is the most certain of all principles, since it fits the description we gave. For it is impossible for anyone to believe that the same thing is and is not, as some think Heraclitus says.[5]

4 "Analytics" is Aristotle's name for the study of logical inference, set out in his *Prior* and *Posterior Analytics*.

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οὐκ ἔστι γὰρ ἀναγκαῖον, ἅ τις λέγει, ταῦτα καὶ ὑπολαμβάνειν· εἰ δὲ μὴ ἐνδέχεται ἅμα ὑπάρχειν τῷ αὐτῷ τἀναντία (προσδιωρίσθω δ' ἡμῖν καὶ ταύτῃ τῇ προτάσει τὰ εἰωθότα), ἐναντία δ' ἐστὶ δόξα δόξῃ ἡ τῆς ἀντιφάσεως, φανερὸν ὅτι ἀδύνατον ἅμα ὑπολαμβάνειν τὸν αὐτὸν εἶναι καὶ μὴ εἶναι τὸ αὐτό· ἅμα γὰρ ἂν ἔχοι τὰς ἐναντίας δόξας ὁ διεψευσμένος περὶ τούτου. διὸ πάντες οἱ ἀποδεικνύντες εἰς ταύτην ἀνάγουσιν ἐσχάτην δόξαν· φύσει γὰρ ἀρχὴ καὶ τῶν ἄλλων ἀξιωμάτων αὕτη πάντων.	For it is not necessary that what a person says he also believes. And if it is not possible for contraries to belong to the same thing at the same time (let the usual qualifications be added to this premise too), and the belief contrary to a belief is the belief in its contradiction, evidently it is impossible for the same person at the same time to believe that the same thing is and is not; for someone who was mistaken on this point would hold contrary beliefs at the same time. That is why everyone who carries out a demonstration traces it back to this as an ultimate belief; for this is by nature the starting point of all the other axioms as well.

DEFENDING NON-CONTRADICTION

The principle cannot be demonstrated, but it can be defended by refutation if the opponent says anything.

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εἰσὶ δέ τινες οἵ, καθάπερ εἴπομεν, αὐτοί τε ἐνδέχεσθαί φασι τὸ αὐτὸ εἶναι καὶ μὴ εἶναι, [1006a] καὶ ὑπολαμβάνειν οὕτως. χρῶνται δὲ τῷ λόγῳ τούτῳ πολλοὶ καὶ τῶν περὶ φύσεως. ἡμεῖς δὲ νῦν εἰλήφαμεν ὡς ἀδυνάτου ὄντος ἅμα εἶναι καὶ μὴ εἶναι, καὶ διὰ τούτου ἐδείξαμεν ὅτι βεβαιοτάτη αὕτη τῶν ἀρχῶν πασῶν. ἀξιοῦσι δὴ καὶ τοῦτο ἀποδεικνύναι τινὲς δι' ἀπαιδευσίαν· ἔστι γὰρ ἀπαιδευσία τὸ μὴ γιγνώσκειν τίνων δεῖ ζητεῖν ἀπόδειξιν καὶ τίνων οὐ δεῖ· ὅλως μὲν γὰρ ἁπάντων ἀδύνατον ἀπόδειξιν εἶναι (εἰς ἄπειρον γὰρ ἂν βαδίζοι, ὥστε μηδ' οὕτως εἶναι ἀπόδειξιν), εἰ δέ τινων μὴ δεῖ ζητεῖν ἀπόδειξιν, τίνα ἀξιοῦσιν εἶναι μᾶλλον τοιαύτην ἀρχὴν οὐκ ἂν ἔχοιεν εἰπεῖν.	There are some who, as we said, both say themselves that it is possible for the same thing to be and not to be, [1006a] and say that one can believe this. Many of the writers on nature, too, make use of this claim. But we have just now taken it that it is impossible at the same time to be and not to be, and by means of this we have shown that this is the most certain of all principles. Some people, through lack of training, even demand that this be demonstrated; for it is lack of training not to know what one should seek demonstration of and what one should not. It is altogether impossible for there to be demonstration of everything (it would go on to infinity, so that even so there would be no demonstration); and if there are some things of which one should not seek demonstration, these people could not say what principle they think has more claim to be such than this one.
1006a ἔστι δ' ἀποδεῖξαι ἐλεγκτικῶς καὶ περὶ τούτου ὅτι ἀδύνατον, ἂν μόνον τι λέγῃ ὁ ἀμφισβητῶν· ἂν δὲ μηθέν, γελοῖον τὸ ζητεῖν λόγον πρὸς τὸν μηθενὸς ἔχοντα λόγον, ᾗ μὴ ἔχει· ὅμοιος γὰρ φυτῷ ὁ τοιοῦτος ᾗ τοιοῦτος ἤδη. τὸ δ' ἐλεγκτικῶς ἀποδεῖξαι λέγω διαφέρειν καὶ τὸ ἀποδεῖξαι, ὅτι ἀποδεικνύων μὲν ἂν δόξειεν αἰτεῖσθαι τὸ ἐν ἀρχῇ, ἄλλου δὲ τοῦ τοιούτου αἰτίου ὄντος ἔλεγχος ἂν εἴη καὶ οὐκ ἀπόδειξις. ἀρχὴ δὲ πρὸς ἅπαντα τὰ τοιαῦτα οὐ τὸ ἀξιοῦν ἢ εἶναί τι λέγειν ἢ μὴ εἶναι (τοῦτο μὲν γὰρ τάχ' ἄν τις ὑπολάβοι τὸ ἐξ ἀρχῆς αἰτεῖν), ἀλλὰ σημαίνειν γέ τι	But it is possible to demonstrate by way of refutation that even this view is impossible, if only the opponent says something. If he says nothing, it is ridiculous to look for an argument against someone who has no argument about anything, insofar as he has none; such a person, as such, is already like a plant. I say that demonstrating by way of refutation differs from demonstrating, because someone demonstrating would seem to be begging the question, whereas if the other person

5 Heraclitus of Ephesus (around 500 BC) was known for riddling sayings on the unity of opposites.

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καὶ αὐτῷ καὶ ἄλλῳ· τοῦτο γὰρ ἀνάγκη, εἴπερ λέγοι τι. εἰ γὰρ μή, οὐκ ἂν εἴη τῷ τοιούτῳ λόγος, οὔτ' αὐτῷ πρὸς αὐτὸν οὔτε πρὸς ἄλλον.

ἂν δέ τις τοῦτο διδῷ, ἔσται ἀπόδειξις· ἤδη γάρ τι ἔσται ὡρισμένον. ἀλλ' αἴτιος οὐχ ὁ ἀποδεικνὺς ἀλλ' ὁ ὑπομένων· ἀναιρῶν γὰρ λόγον ὑπομένει λόγον. ἔτι δὲ ὁ τοῦτο συγχωρήσας συγκεχώρηκέ τι ἀληθὲς εἶναι χωρὶς ἀποδείξεως [ὥστε οὐκ ἂν πᾶν οὕτως καὶ οὐχ οὕτως ἔχοι]. —πρῶτον μὲν οὖν δῆλον ὡς τοῦτό γ' αὐτὸ ἀληθές, ὅτι σημαίνει τὸ ὄνομα τὸ εἶναι ἢ μὴ εἶναι τοδί, ὥστ' οὐκ ἂν πᾶν οὕτως καὶ οὐχ οὕτως ἔχοι· ἔτι εἰ τὸ ἄνθρωπος σημαίνει ἕν, ἔστω τοῦτο τὸ ζῷον δίπουν.

λέγω δὲ τὸ ἓν σημαίνειν τοῦτο· εἰ τοῦτ' ἔστιν ἄνθρωπος, ἂν ᾖ τι ἄνθρωπος, τοῦτ' ἔσται τὸ ἀνθρώπῳ εἶναι (διαφέρει δ' οὐθὲν οὐδ' εἰ πλείω τις φαίη σημαίνειν μόνον δὲ ὡρισμένα, [1006b] τεθείη γὰρ ἂν ἐφ' ἑκάστῳ λόγῳ ἕτερον ὄνομα· λέγω δ' οἷον, εἰ μὴ φαίη τὸ ἄνθρωπος ἓν σημαίνειν, πολλὰ δέ, ὧν ἑνὸς μὲν εἷς λόγος τὸ ζῷον δίπουν, εἶεν δὲ καὶ ἕτεροι πλείους, ὡρισμένοι δὲ τὸν ἀριθμόν· τεθείη γὰρ ἂν ἴδιον ὄνομα καθ' ἕκαστον τὸν λόγον· εἰ δὲ μή [τεθείη], ἀλλ' ἄπειρα σημαίνειν φαίη, φανερὸν ὅτι οὐκ ἂν εἴη λόγος·

1006b τὸ γὰρ μὴ ἓν σημαίνειν οὐθὲν σημαίνειν ἐστίν, μὴ σημαινόντων δὲ τῶν ὀνομάτων ἀνῄρηται τὸ διαλέγεσθαι πρὸς ἀλλήλους, κατὰ δὲ τὴν ἀλήθειαν καὶ πρὸς αὑτόν· οὐθὲν γὰρ ἐνδέχεται νοεῖν μὴ νοοῦντα ἕν, εἰ δ' ἐνδέχεται, τεθείη ἂν ὄνομα τούτῳ τῷ πράγματι ἕν).—ἔστω δή, ὥσπερ ἐλέχθη κατ' ἀρχάς, σημαῖνόν τι τὸ ὄνομα καὶ σημαῖνον ἕν· οὐ δὴ ἐνδέχεται τὸ ἀνθρώπῳ εἶναι σημαίνειν ὅπερ ἀνθρώπῳ μὴ εἶναι, εἰ τὸ ἄνθρωπος σημαίνει μὴ μόνον καθ' ἑνὸς ἀλλὰ καὶ ἕν (οὐ γὰρ τοῦτο ἀξιοῦμεν τὸ ἓν σημαίνειν, τὸ καθ' ἑνός, ἐπεὶ οὕτω γε κἂν τὸ μουσικὸν καὶ τὸ λευκὸν καὶ τὸ ἄνθρωπος ἓν ἐσήμαινεν, ὥστε ἓν ἅπαντα ἔσται· συνώνυμα γάρ).

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is responsible for it, there would be refutation and not demonstration. The starting point for all such arguments is not to demand that the opponent say that something is or is not (for one might take that to be begging the question), but that he at least signify something, both to himself and to another; this is necessary, if he is to say anything at all. If he does not, such a person would have no discourse, either with himself or with anyone else.

If someone grants this, there will be demonstration, for there will already be something definite. But the one responsible is not the one demonstrating but the one who stands his ground; for in doing away with discourse he relies on discourse. Further, whoever has granted this has granted that something is true apart from demonstration. —First, then, this at least is clearly true: that a word signifies that something is, or is not, this particular thing; so not everything could be so and not so. Further, if "human being" signifies one thing, let this be two-footed animal.

By "signifying one thing" I mean this: if this is what a human being is, then if anything is a human being, this will be what being a human being is. (It makes no difference even if someone said that a word signifies several things, provided they are limited in number; [1006b] for a different word could be assigned to each account. I mean, for instance, if someone said that "human being" signifies not one thing but many, of which one has the single account "two-footed animal," but there are also several others, limited in number: a distinct word could be assigned for each account. But if no word were assigned, and he said it signifies infinitely many things, evidently there could be no account.

For not to signify one thing is to signify nothing; and if words do not signify, conversation with one another is done away with—and in truth conversation with oneself as well. For it is impossible to think of anything if one does not think of one thing; and if it is possible, one word could be assigned to this thing.)—Let it be granted, then, as was said at the start, that the word signifies something, and signifies one thing. Then it cannot be that being a human being signifies precisely not being a human being, if "human being" signifies not only something about one subject but one thing. (For we do not count signifying something

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about one subject as signifying one thing, since in that way "musical," "pale," and "human being" would signify one thing, so that all things would be one; for they would all be synonymous.)

καὶ οὐκ ἔσται εἶναι καὶ μὴ εἶναι τὸ αὐτὸ ἀλλ' ἢ καθ' ὁμωνυμίαν, ὥσπερ ἂν εἰ ὃν ἡμεῖς ἄνθρωπον καλοῦμεν, ἄλλοι μὴ ἄνθρωπον καλοῖεν· τὸ δ' ἀπορούμενον οὐ τοῦτό ἐστιν, εἰ ἐνδέχεται τὸ αὐτὸ ἅμα εἶναι καὶ μὴ εἶναι ἄνθρωπον τὸ ὄνομα, ἀλλὰ τὸ πρᾶγμα. εἰ δὲ μὴ σημαίνει ἕτερον τὸ ἄνθρωπος καὶ τὸ μὴ ἄνθρωπος, δῆλον ὅτι καὶ τὸ μὴ εἶναι ἀνθρώπῳ τοῦ εἶναι ἀνθρώπῳ· ὥστ' ἔσται τὸ ἀνθρώπῳ εἶναι μὴ ἀνθρώπῳ εἶναι· ἓν γὰρ ἔσται. τοῦτο γὰρ σημαίνει τὸ εἶναι ἕν, τὸ ὡς λώπιον καὶ ἱμάτιον, εἰ ὁ λόγος εἷς· εἰ δὲ ἔσται ἕν, ἓν σημανεῖ τὸ ἀνθρώπῳ εἶναι καὶ μὴ ἀνθρώπῳ. ἀλλ' ἐδέδεικτο ὅτι ἕτερον σημαίνει.

And it will not be possible for the same thing to be and not to be, except by coincidence of name—as if what we call a human being others were to call a not-human-being. But the puzzle is not whether the same thing can at the same time be and not be a human being in name, but whether it can in fact. If "human being" and "not human being" do not signify something different, clearly not being a human being will not signify anything different from being a human being either, so that being a human being will be not being a human being; for they will be one. For this is what being one means, as with "cloak" and "mantle": that the account is one. And if they are to be one, being a human being and not being a human being will signify one thing. But it had been shown that they signify something different.

ἀνάγκη τοίνυν, εἴ τί ἐστιν ἀληθὲς εἰπεῖν ὅτι ἄνθρωπος, ζῷον εἶναι δίπουν (τοῦτο γὰρ ἦν ὃ ἐσήμαινε τὸ ἄνθρωπος)· εἰ δ' ἀνάγκη τοῦτο, οὐκ ἐνδέχεται μὴ εἶναι ⟨τότε⟩ τὸ αὐτὸ ζῷον δίπουν (τοῦτο γὰρ σημαίνει τὸ ἀνάγκη εἶναι, τὸ ἀδύνατον εἶναι μὴ εἶναι [ἄνθρωπον])· οὐκ ἄρα ἐνδέχεται ἅμα ἀληθὲς εἶναι εἰπεῖν τὸ αὐτὸ ἄνθρωπον εἶναι καὶ μὴ εἶναι ἄνθρωπον. ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τοῦ μὴ εἶναι ἄνθρωπον· 1007a τὸ γὰρ ἀνθρώπῳ εἶναι καὶ τὸ μὴ ἀνθρώπῳ εἶναι ἕτερον σημαίνει, εἴπερ καὶ τὸ λευκὸν εἶναι καὶ τὸ ἄνθρωπον εἶναι ἕτερον· πολὺ γὰρ ἀντίκειται ἐκεῖνο μᾶλλον, ὥστε σημαίνειν ἕτερον.

So if it is true to say of something that it is a human being, it must be a two-footed animal (for that was what "human being" signified). And if this is necessary, it is not possible for the same thing not to be a two-footed animal at that time (for this is what "being necessary" means: that it is impossible for it not to be). So it is not possible for it to be true at the same time to say that the same thing is a human being and is not a human being. The same argument applies to not being a human being. 1007a For being a human being and being not a human being signify different things, given that even being pale and being a human being are different; for the former are far more opposed, and so signify different things.

1007a εἰ δὲ καὶ τὸ λευκὸν φήσει τὸ αὐτὸ καὶ ἓν σημαίνειν, πάλιν τὸ αὐτὸ ἐροῦμεν ὅπερ καὶ πρότερον ἐλέχθη, ὅτι ἓν πάντα ἔσται καὶ οὐ μόνον τὰ ἀντικείμενα. εἰ δὲ μὴ ἐνδέχεται τοῦτο, συμβαίνει τὸ λεχθέν, ἂν ἀποκρίνηται τὸ ἐρωτώμενον. ἐὰν δὲ προστιθῇ ἐρωτῶντος ἁπλῶς καὶ τὰς ἀποφάσεις, οὐκ ἀποκρίνεται τὸ ἐρωτώμενον. οὐθὲν γὰρ κωλύει εἶναι τὸ αὐτὸ καὶ ἄνθρωπον καὶ λευκὸν καὶ ἄλλα μυρία τὸ πλῆθος· ἀλλ' ὅμως ἐρομένου εἰ ἀληθὲς εἰπεῖν ἄνθρωπον τοῦτο εἶναι ἢ οὔ, ἀποκριτέον τὸ ἓν σημαῖνον καὶ οὐ προσθετέον ὅτι καὶ λευκὸν καὶ μέγα. καὶ γὰρ ἀδύνατον ἄπειρά γ' ὄντα τὰ συμβεβηκότα διελθεῖν· ἢ οὖν ἅπαντα διελθέτω ἢ μηθέν.

And if he says that "pale" too signifies one and the same thing, we shall again say what was said before: that all things will be one, and not only opposites. If this is not possible, then what we said follows—provided he answers the question asked. But if, when simply asked the question, he adds the negations as well, he is not answering the question asked. For nothing prevents the same thing from being a human being and pale and countless other things besides. Still, when asked whether it is true to say that this is a human being or not, one must give the answer that signifies one thing, and not add that it is also pale and large.

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After all, it is impossible to go through the accidents, since they are infinite. So let him go through either all of them or none.

ὁμοίως τοίνυν εἰ καὶ μυριάκις ἐστὶ τὸ αὐτὸ ἄνθρωπος καὶ οὐκ ἄνθρωπος, οὐ προσαποκριτέον τῷ ἐρομένῳ εἰ ἔστιν ἄνθρωπος, ὅτι ἐστὶν ἅμα καὶ οὐκ ἄνθρωπος, εἰ μὴ καὶ τἆλλα ὅσα συμβέβηκε προσαποκριτέον, ὅσα ἐστὶν ἢ μὴ ἔστιν· ἐὰν δὲ τοῦτο ποιῇ, οὐ διαλέγεται.—ὅλως δ' ἀναιροῦσιν οἱ τοῦτο λέγοντες οὐσίαν καὶ τὸ τί ἦν εἶναι. πάντα γὰρ ἀνάγκη συμβεβηκέναι φάσκειν αὐτοῖς, καὶ τὸ ὅπερ ἀνθρώπῳ εἶναι ἢ ζῴῳ εἶναι μὴ εἶναι. εἰ γὰρ ἔσται τι ὅπερ ἀνθρώπῳ εἶναι, τοῦτο οὐκ ἔσται μὴ ἀνθρώπῳ εἶναι ἢ μὴ εἶναι ἀνθρώπῳ (καίτοι αὗται ἀποφάσεις τούτου)· ἓν γὰρ ἦν ὃ ἐσήμαινε, καὶ ἦν τοῦτό τινος οὐσία. τὸ δ' οὐσίαν σημαίνειν ἐστὶν ὅτι οὐκ ἄλλο τι τὸ εἶναι αὐτῷ.

In the same way, then, even if the same thing is a human being and not a human being ten thousand times over, one should not, when asked whether it is a human being, add in reply that it is at the same time also not a human being—unless one must also add in reply all the other things that are accidental to it, everything it is or is not. And if he does that, he is not engaged in discussion. —In general, those who say this do away with substance and essence. For they are bound to claim that everything is accidental, and that there is no such thing as precisely being a human being or being an animal. For if there is to be something that is precisely being a human being, this will not be being not a human being or not being a human being (and yet these are its negations). For what it signified was one thing, and this was the substance of something; and to signify the substance of something is to signify that its being is nothing other than this.

εἰ δ' ἔσται αὐτῷ τὸ ὅπερ ἀνθρώπῳ εἶναι ἢ ὅπερ μὴ ἀνθρώπῳ εἶναι ἢ ὅπερ μὴ εἶναι ἀνθρώπῳ, ἄλλο ἔσται, ὥστ' ἀναγκαῖον αὐτοῖς λέγειν ὅτι οὐθενὸς ἔσται τοιοῦτος λόγος, ἀλλὰ πάντα κατὰ συμβεβηκός· τούτῳ γὰρ διώρισται οὐσία καὶ τὸ συμβεβηκός· τὸ γὰρ λευκὸν τῷ ἀνθρώπῳ συμβέβηκεν ὅτι ἔστι μὲν λευκὸς ἀλλ' οὐχ ὅπερ λευκόν. εἰ δὲ πάντα κατὰ συμβεβηκὸς λέγεται, οὐθὲν ἔσται πρῶτον τὸ καθ' οὗ, εἰ ἀεὶ τὸ συμβεβηκὸς καθ' ὑποκειμένου τινὸς σημαίνει τὴν κατηγορίαν. 1007b ἀνάγκη ἄρα εἰς ἄπειρον ἰέναι. ἀλλ' ἀδύνατον· οὐδὲ γὰρ πλείω συμπλέκεται δυοῖν· τὸ γὰρ συμβεβηκὸς οὐ συμβεβηκότι συμβεβηκός, εἰ μὴ ὅτι ἄμφω συμβέβηκε ταὐτῷ, λέγω δ' οἷον τὸ λευκὸν μουσικὸν καὶ τοῦτο λευκὸν ὅτι ἄμφω τῷ ἀνθρώπῳ συμβέβηκεν.

But if precisely being a human being is, for it, also precisely being not a human being or precisely not being a human being, then its being will be something other than this. So they must say that there will be no such account of anything, but that everything is accidental. For this is what distinguishes substance from accident: pale is accidental to the human being because he is pale, but is not precisely pale. And if everything is said accidentally, there will be nothing primary of which things are said, since the accidental always signifies a predication about some underlying subject. 1007b So the series must go on to infinity. But that is impossible; for not even more than two are combined. For an accident is not an accident of an accident, except in that both are accidental to the same thing. I mean, for instance, that the pale is musical and the musical is pale because both are accidental to the human being.

1007b ἀλλ' οὐχ ὁ Σωκράτης μουσικὸς οὕτως, ὅτι ἄμφω συμβέβηκεν ἑτέρῳ τινί. ἐπεὶ τοίνυν τὰ μὲν οὕτως τὰ δ' ἐκείνως λέγεται συμβεβηκότα, ὅσα οὕτως λέγεται ὡς τὸ λευκὸν τῷ Σωκράτει, οὐκ ἐνδέχεται ἄπειρα εἶναι ἐπὶ τὸ ἄνω, οἷον τῷ Σωκράτει τῷ λευκῷ ἕτερόν τι συμβεβηκός· οὐ γὰρ γίγνεταί τι ἓν ἐξ ἁπάντων. οὐδὲ δὴ τῷ λευκῷ ἕτερόν τι ἔσται συμβεβηκός, οἷον τὸ μουσικόν· οὐθέν τε

But Socrates is not musical in this way, because both are accidental to something else. Since, then, some things are called accidental in this way and others in that, those called so in the way that pale is accidental to Socrates cannot form an infinite series upward—there cannot, for instance, be some further accident of pale Socrates, since no

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γὰρ μᾶλλον τοῦτο ἐκείνῳ ἢ ἐκεῖνο τούτῳ συμβέβηκεν, καὶ ἅμα διώρισται ὅτι τὰ μὲν οὕτω συμβέβηκε τὰ δ' ὡς τὸ μουσικὸν Σωκράτει· ὅσα δ' οὕτως, οὐ συμβεβηκότι συμβέβηκε συμβεβηκός, ἀλλ' ὅσα ἐκείνως, ὥστ' οὐ πάντα κατὰ συμβεβηκὸς λεχθήσεται. ἔσται ἄρα τι καὶ ὡς οὐσίαν σημαῖνον.

εἰ δὲ τοῦτο, δέδεικται ὅτι ἀδύνατον ἅμα κατηγορεῖσθαι τὰς ἀντιφάσεις.—ἔτι εἰ ἀληθεῖς αἱ ἀντιφάσεις ἅμα κατὰ τοῦ αὐτοῦ πᾶσαι, δῆλον ὡς ἅπαντα ἔσται ἕν. ἔσται γὰρ τὸ αὐτὸ καὶ τριήρης καὶ τοῖχος καὶ ἄνθρωπος, εἰ κατὰ παντός τι ἢ καταφῆσαι ἢ ἀποφῆσαι ἐνδέχεται, καθάπερ ἀνάγκη τοῖς τὸν Πρωταγόρου λέγουσι λόγον. εἰ γάρ τῳ δοκεῖ μὴ εἶναι τριήρης ὁ ἄνθρωπος, δῆλον ὡς οὐκ ἔστι τριήρης· ὥστε καὶ ἔστιν, εἴπερ ἡ ἀντίφασις ἀληθής. καὶ γίγνεται δὴ τὸ τοῦ Ἀναξαγόρου, ὁμοῦ πάντα χρήματα· ὥστε μηθὲν ἀληθῶς ὑπάρχειν. τὸ ἀόριστον οὖν ἐοίκασι λέγειν, καὶ οἰόμενοι τὸ ὂν λέγειν περὶ τοῦ μὴ ὄντος λέγουσιν· τὸ γὰρ δυνάμει ὂν καὶ μὴ ἐντελεχείᾳ τὸ ἀόριστόν ἐστιν.

ἀλλὰ μὴν λεκτέον γ' αὐτοῖς κατὰ παντὸς ⟨παντὸς⟩ τὴν κατάφασιν ἢ τὴν ἀπόφασιν· ἄτοπον γὰρ εἰ ἑκάστῳ ἡ μὲν αὐτοῦ ἀπόφασις ὑπάρξει, ἡ δ' ἑτέρου ὃ μὴ ὑπάρχει αὐτῷ οὐχ ὑπάρξει· λέγω δ' οἷον εἰ ὀληθὲς εἰπεῖν τὸν ἄνθρωπον ὅτι οὐκ ἄνθρωπος, δῆλον ὅτι καὶ ἢ τριήρης ἢ οὐ τριήρης. εἰ μὲν οὖν ἡ κατάφασις, ἀνάγκη καὶ τὴν ἀπόφασιν· εἰ δὲ μὴ ὑπάρχει ἡ κατάφασις, ἥ γε ἀπόφασις ὑπάρξει μᾶλλον ἢ ἡ αὐτοῦ. 1008a εἰ οὖν κἀκείνη ὑπάρχει, ὑπάρξει καὶ ἡ τῆς τριήρους· εἰ δ' αὕτη, καὶ ἡ κατάφασις.—ταῦτά τε οὖν συμβαίνει τοῖς λέγουσι τὸν λόγον τοῦτον, καὶ ὅτι οὐκ ἀνάγκη ἢ φάναι ἢ ἀποφάναι.

1008a εἰ γὰρ ἀληθὲς ὅτι ἄνθρωπος καὶ οὐκ ἄνθρωπος, δῆλον ὅτι καὶ οὔτ' ἄνθρωπος οὔτ' οὐκ ἄνθρωπος ἔσται· τοῖν γὰρ

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single thing comes to be out of them all. Nor, again, will anything else be accidental to the pale —the musical, for example. For this is no more accidental to that than that to this; and at the same time we have distinguished that some things are accidental in this way, and others in the way the musical is to Socrates. In cases of the latter kind the accident is not accidental to an accident; it is only in cases of the former kind. So not everything will be said accidentally. There will, then, even so be something that signifies substance.

And if so, it has been shown that contradictories cannot be predicated at the same time. —Further, if all contradictory statements about the same thing are true at the same time, clearly all things will be one. For the same thing will be a trireme and a wall and a human being, if it is possible either to affirm or to deny anything of everything —as those who put forward Protagoras' doctrine are compelled to hold. For if someone thinks that the human being is not a trireme, clearly he is not a trireme; and so he also is one, if the contradictory statement is true. And so we get Anaxagoras' "all things together," with the result that nothing truly exists. They seem, then, to be talking about the indeterminate, and while they think they are talking about what is, they are talking about what is not. For the indeterminate is what exists potentially and not in actuality.

Yet they are bound to hold that of everything either the affirmation or the negation of anything is true. For it would be absurd if each thing's own negation were to belong to it, while the negation of something else that does not belong to it were not to belong to it. I mean, for instance: if it is true to say of the human being that he is not a human being, clearly it is also true to say that he is either a trireme or not a trireme. If, then, the affirmation holds, the negation must hold too; and if the affirmation does not hold, the negation at any rate will hold more than the thing's own negation. 1008a If, then, even that negation holds, the negation of "trireme" will hold too; and if this holds, so will the affirmation. —These, then, are the consequences for those who hold this doctrine; and a further one is that it is not necessary either to assert or to deny.

For if it is true that he is a human being and not a human being, clearly he will also be neither a hu-

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δυοῖν δύο ἀποφάσεις, εἰ δὲ μία ἐξ ἀμφοῖν ἐκείνη, καὶ αὕτη μία ἂν εἴη ἀντικειμένη.—ἔτι ἤτοι περὶ ἅπαντα οὕτως ἔχει, καὶ ἔστι καὶ λευκὸν καὶ οὐ λευκὸν καὶ ὂν καὶ οὐκ ὄν, καὶ περὶ τὰς ἄλλας φάσεις καὶ ἀποφάσεις ὁμοιοτρόπως, ἢ οὔ ἀλλὰ περὶ μέν τινας, περί τινας δ' οὔ. καὶ εἰ μὲν μὴ περὶ πάσας, αὗται ἂν εἶεν ὁμολογούμεναι· εἰ δὲ περὶ πάσας, πάλιν ἤτοι καθ' ὅσων τὸ φῆσαι καὶ ἀποφῆσαι καὶ καθ' ὅσων ἀποφῆσαι καὶ φῆσαι, ἢ κατὰ μὲν ὧν φῆσαι καὶ ἀποφῆσαι, καθ' ὅσων δὲ ἀποφῆσαι οὐ πάντων φῆσαι.

καὶ εἰ μὲν οὕτως, εἴη ἄν τι παγίως οὐκ ὄν, καὶ αὕτη βεβαία δόξα, καὶ εἰ τὸ μὴ εἶναι βέβαιόν τι καὶ γνώριμον, γνωριμωτέρα ἂν εἴη ἡ φάσις ἡ ἀντικειμένη· εἰ δὲ ὁμοίως καὶ ὅσα ἀποφῆσαι φάναι, ἀνάγκη ἤτοι ἀληθὲς διαιροῦντα λέγειν, οἷον ὅτι λευκὸν καὶ πάλιν ὅτι οὐ λευκόν, ἢ οὔ.

καὶ εἰ μὲν μὴ ἀληθὲς διαιροῦντα λέγειν, οὐ λέγει τε ταῦτα καὶ οὐκ ἔστιν οὐθέν (τὰ δὲ μὴ ὄντα πῶς ἂν φθέγξαιτο ἢ βαδίσειεν;), καὶ πάντα δ' ἂν εἴη ἕν, ὥσπερ καὶ πρότερον εἴρηται, καὶ ταὐτὸν ἔσται καὶ ἄνθρωπος καὶ θεὸς καὶ τριήρης καὶ αἱ ἀντιφάσεις αὐτῶν (εἰ γὰρ ὁμοίως καθ' ἑκάστου, οὐδὲν διοίσει ἕτερον ἑτέρου· εἰ γὰρ διοίσει, τοῦτ' ἔσται ἀληθὲς καὶ ἴδιον)· ὁμοίως δὲ καὶ εἰ διαιροῦντα ἐνδέχεται ἀληθεύειν, συμβαίνει τὸ λεχθέν, πρὸς δὲ τούτῳ ὅτι πάντες ἂν ἀληθεύοιεν καὶ πάντες ἂν ψεύδοιντο, καὶ αὐτὸς αὑτὸν ὁμολογεῖ ψεύδεσθαι. ἅμα δὲ φανερὸν ὅτι περὶ οὐθενός ἐστι πρὸς τοῦτον ἡ σκέψις· οὐθὲν γὰρ λέγει.

οὔτε γὰρ οὕτως οὔτ' οὐχ οὕτως λέγει, ἀλλ' οὕτως τε καὶ οὐχ οὕτως· καὶ πάλιν γε ταῦτα ἀπόφησιν ἄμφω, ὅτι οὔθ' οὕτως οὔτε οὐχ οὕτως· εἰ γὰρ μή, ἤδη ἄν τι εἴη ὡρισμένον.—ἔτι εἰ ὅταν ἡ φάσις ἀληθὴς ᾖ, ἡ ἀπόφασις ψευδής, κἂν αὕτη ἀληθὴς ᾖ, ἡ κατάφασις ψευδής, οὐκ ἂν εἴη τὸ αὐτὸ ἅμα φάναι καὶ ἀποφάναι ἀληθῶς. [1008b] ἀλλ' ἴσως φαῖεν ἂν τοῦτ' εἶναι τὸ ἐξ ἀρχῆς κείμενον.—ἔτι ἆρα ὁ μὲν ἢ ἔχειν πως ὑπολαμβάνων ἢ μὴ ἔχειν διέψευσται, ὁ

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man being nor not a human being. For to the two statements there are two negations; and if the former is a single statement made up of both, the latter too would be a single statement, opposed to it. —Further, either it is like this in every case, and a thing is both white and not white, and being and not being, and similarly with all other assertions and denials; or it is not, but holds in some cases and not in others. And if not in all cases, these would be agreed exceptions. But if in all cases, then again either one can deny whatever one can assert, and assert whatever one can deny; or one can deny whatever one can assert, but cannot assert everything one can deny.

And if it is the latter, there would be something that firmly is not, and this would be a secure belief; and if not being is something secure and knowable, the opposite assertion would be more knowable still. But if one can equally assert whatever one can deny, then either it is true to speak dividing the two—saying, for instance, that it is white, and then again that it is not white—or it is not.

And if it is not true to speak dividing them, then he does not say these things, and nothing exists (and how could things that do not exist speak or walk?); and all things would be one, as was said before, and a human being and a god and a trireme and their contradictories will be the same. (For if contradictories hold alike of each thing, one thing will not differ from another; for if it does differ, this difference will be true of it and distinctive.) Likewise, if it is possible to speak truly while dividing them, the consequence we mentioned follows; and besides, everyone would be speaking truly and everyone would be speaking falsely, and he himself admits that he is speaking falsely. At the same time it is evident that an inquiry addressed to this person is about nothing at all; for he says nothing.

For he says neither "so" nor "not so," but "so and not so"; and then again he denies both of these, saying "neither so nor not so." For if he did not, there would already be something definite. —Further, if when the assertion is true the denial is false, and when the denial is true the affirmation is false, it would not be possible to assert and deny the same thing truly at the same time. [1008b] But perhaps they would say that this is the very point laid

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δὲ ἄμφω ἀληθεύει; εἰ γὰρ ἀληθεύει, τί ἂν εἴη τὸ λεγόμενον ὅτι τοιαύτη τῶν ὄντων ἡ φύσις;

1008b εἰ δὲ μὴ ἀληθεύει, ἀλλὰ μᾶλλον ἀληθεύει ἢ ὁ ἐκείνως ὑπολαμβάνων, ἤδη πως ἔχοι ἂν τὰ ὄντα, καὶ τοῦτ' ἀληθὲς ἂν εἴη, καὶ οὐχ ἅμα καὶ οὐκ ἀληθές. εἰ δὲ ὁμοίως ἅπαντες καὶ ψεύδονται καὶ ἀληθῆ λέγουσιν, οὔτε φθέγξασθαι οὔτ' εἰπεῖν τῷ τοιούτῳ ἔσται· ἅμα γὰρ ταῦτά τε καὶ οὐ ταῦτα λέγει. εἰ δὲ μηθὲν ὑπολαμβάνει ἀλλ' ὁμοίως οἴεται καὶ οὐκ οἴεται, τί ἂν διαφερόντως ἔχοι τῶν γε φυτῶν; ὅθεν καὶ μάλιστα φανερόν ἐστιν ὅτι οὐδεὶς οὕτω διάκειται οὔτε τῶν ἄλλων οὔτε τῶν λεγόντων τὸν λόγον τοῦτον. διὰ τί γὰρ βαδίζει Μέγαράδε ἀλλ' οὐχ ἡσυχάζει, οἰόμενος βαδίζειν δεῖν; οὐδ' εὐθέως ἔωθεν πορεύεται εἰς φρέαρ ἢ εἰς φάραγγα, ἐὰν τύχῃ, ἀλλὰ φαίνεται εὐλαβούμενος, ὡς οὐχ ὁμοίως οἰόμενος μὴ ἀγαθὸν εἶναι τὸ ἐμπεσεῖν καὶ ἀγαθόν;

δῆλον ἄρα ὅτι τὸ μὲν βέλτιον ὑπολαμβάνει τὸ δ' οὐ βέλτιον. εἰ δὲ τοῦτο, καὶ τὸ μὲν ἄνθρωπον τὸ δ' οὐκ ἄνθρωπον καὶ τὸ μὲν γλυκὺ τὸ δ' οὐ γλυκὺ ἀνάγκη ὑπολαμβάνειν. οὐ γὰρ ἐξ ἴσου ἅπαντα ζητεῖ καὶ ὑπολαμβάνει, ὅταν οἰηθεὶς βέλτιον εἶναι τὸ πιεῖν ὕδωρ καὶ ἰδεῖν ἄνθρωπον εἶτα ζητῇ αὐτά· καίτοι ἔδει γε, εἰ ταὐτὸν ἦν ὁμοίως καὶ ἄνθρωπος καὶ οὐκ ἄνθρωπος. ἀλλ' ὅπερ ἐλέχθη, οὐθεὶς ὃς οὐ φαίνεται τὰ μὲν εὐλαβούμενος τὰ δ' οὔ· ὥστε, ὡς ἔοικε, πάντες ὑπολαμβάνουσιν ἔχειν ἁπλῶς, εἰ μὴ περὶ ἅπαντα, ἀλλὰ περὶ τὸ ἄμεινον καὶ χεῖρον.

εἰ δὲ μὴ ἐπιστάμενοι ἀλλὰ δοξάζοντες, πολὺ μᾶλλον ἐπιμελητέον ἂν εἴη τῆς ἀληθείας, ὥσπερ καὶ νοσώδει ὄντι ἢ ὑγιεινῷ τῆς ὑγιείας· καὶ γὰρ ὁ δοξάζων πρὸς τὸν ἐπιστάμενον οὐχ ὑγιεινῶς διάκειται πρὸς τὴν ἀλήθειαν.—ἔτι εἰ ὅτι μάλιστα πάντα οὕτως ἔχει καὶ οὐχ οὕτως, ἀλλὰ τό γε μᾶλλον καὶ ἧττον ἔνεστιν ἐν τῇ φύσει τῶν ὄντων· οὐ γὰρ ἂν ὁμοίως φήσαιμεν εἶναι τὰ δύο ἄρτια καὶ τὰ

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down at the start. —Further, is the person who supposes that a thing is some way, or is not, mistaken, while the one who supposes both is right? If he is right, what could be meant by saying that the nature of things is of this kind?

And if he is not right, but more right than the one who supposes things are one way or the other, then things would already be some definite way, and this would be true, and not at the same time also not true. And if everyone alike both speaks falsely and speaks truly, a person like that will be unable to utter or say anything; for he says these things and at the same time not these things. And if he supposes nothing, but equally thinks and does not think, how would he be any different from a plant? This is what makes it most evident that no one is really in this condition—neither anyone else nor those who put forward this argument. For why does such a person walk to Megara rather than stay put, when he thinks he ought to be walking there? Why doesn't he walk straight into a well or over a cliff first thing in the morning, if he happens to come to one? Instead he is evidently careful, as if he did not think that falling in is equally not good and good.[6]

It is clear, then, that he supposes one thing to be better and another not better. And if so, he must also suppose one thing to be a human being and another not a human being, and one thing to be sweet and another not sweet. For he does not seek and suppose all things equally when, thinking it better to drink water and to see a human being, he then goes looking for them; yet he ought to, if a human being and not a human being were equally the same. But, as was said, there is no one who is not evidently careful of some things and not of others. So, it seems, everyone supposes that things are some way without qualification—if not about everything, then at least about what is better and worse.

And if they do this not from knowledge but from belief, they should care about the truth all the more—just as a sick person should care more about health than a healthy one does; for someone who merely believes, compared with someone who knows, is not in a healthy condition with respect to the truth. —Further, however much all

6 Megara was a city about twenty-five miles west of Athens.

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τρία, οὐδ' ὁμοίως διέψευσται ὁ τὰ τέτταρα πέντε οἰόμενος καὶ ὁ χίλια. εἰ οὖν μὴ ὁμοίως, δῆλον ὅτι ἄτερος ἧττον, ὥστε μᾶλλον ἀληθεύει. εἰ οὖν τὸ μᾶλλον ἐγγύτερον, [1009a] εἴη γε ἄν τι ἀληθὲς οὗ ἐγγύτερον τὸ μᾶλλον ἀληθές.

1009a κἂν εἰ μὴ ἔστιν, ἀλλ' ἤδη γέ τι ἔστι βεβαιότερον καὶ ἀληθινώτερον, καὶ τοῦ λόγου ἀπηλλαγμένοι ἂν εἴημεν τοῦ ἀκράτου καὶ κωλύοντός τι τῇ διανοίᾳ ὁρίσαι.

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things may be so and not so, still the more and the less are present in the nature of things. For we would not say that two and three are equally even; nor is someone who thinks four is five as badly mistaken as someone who thinks it is a thousand. If, then, they are not equally mistaken, clearly one is less so, and so is more right. If, then, what is more true is nearer to the truth, [1009a] there would be some truth to which the more true is nearer.

And even if there is not, at least there is already something more certain and more true, and we would be rid of that untempered doctrine which prevents us from determining anything in thought.

PROTAGORAS AND APPEARANCES

The claim that every appearance is true is traced to its sources and answered.

GREEK

ἔστι δ' ἀπὸ τῆς αὐτῆς δόξης καὶ ὁ Πρωταγόρου λόγος, καὶ ἀνάγκη ὁμοίως αὐτοὺς ἅμφω ἢ εἶναι ἢ μὴ εἶναι· εἴτε γὰρ τὰ δοκοῦντα πάντα ἐστὶν ἀληθῆ καὶ τὰ φαινόμενα, ἀνάγκη εἶναι πάντα ἅμα ἀληθῆ καὶ ψευδῆ (πολλοὶ γὰρ τἀναντία ὑπολαμβάνουσιν ἀλλήλοις, καὶ τοὺς μὴ ταὐτὰ δοξάζοντας ἑαυτοῖς διεψεῦσθαι νομίζουσιν· ὥστ' ἀνάγκη τὸ αὐτὸ εἶναί τε καὶ μὴ εἶναι), καὶ εἰ τοῦτ' ἔστιν, ἀνάγκη τὰ δοκοῦντα εἶναι πάντ' ἀληθῆ (τὰ ἀντικείμενα γὰρ δοξάζουσιν ἀλλήλοις οἱ διεψευσμένοι καὶ ἀληθεύοντες· εἰ οὖν ἔχει τὰ ὄντα οὕτως, ἀληθεύσουσι πάντες). ὅτι μὲν οὖν ἀπὸ τῆς αὐτῆς εἰσὶ διανοίας ἀμφότεροι οἱ λόγοι, δῆλον· ἔστι δ' οὐχ ὁ αὐτὸς τρόπος πρὸς ἅπαντας τῆς ἐντεύξεως· οἱ μὲν γὰρ πειθοῦς δέονται οἱ δὲ βίας.

ὅσοι μὲν γὰρ ἐκ τοῦ ἀπορῆσαι ὑπέλαβον οὕτως, τούτων εὐΐατος ἡ ἄγνοια (οὐ γὰρ πρὸς τὸν λόγον ἀλλὰ πρὸς τὴν διάνοιαν ἡ ἀπάντησις αὐτῶν)· ὅσοι δὲ λόγου χάριν λέγουσι, τούτων δ' ἔλεγχος ἴασις τοῦ ἐν τῇ φωνῇ λόγου καὶ τοῦ ἐν τοῖς ὀνόμασιν. ἐλήλυθε δὲ τοῖς διαποροῦσιν αὕτη ἡ δόξα ἐκ τῶν αἰσθητῶν, ἡ μὲν τοῦ ἅμα τὰς ἀντιφάσεις καὶ τἀναντία ὑπάρχειν ὁρῶσιν ἐκ ταὐτοῦ γιγνόμενα τἀναντία· εἰ οὖν μὴ ἐνδέχεται γίγνεσθαι τὸ μὴ ὄν, προϋπῆρχεν ὁμοίως τὸ πρᾶγμα ἅμφω ὄν, ὥσπερ καὶ Ἀναξαγόρας μεμῖχθαι πᾶν ἐν παντί φησι καὶ Δημόκριτος· καὶ γὰρ οὗτος τὸ κενὸν καὶ τὸ πλῆρες ὁμοίως καθ' ὁτιοῦν ὑπάρχειν μέρος, καίτοι τὸ μὲν ὂν τούτων εἶναι τὸ δὲ μὴ ὄν.

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Protagoras' doctrine, too, stems from the same opinion, and both must alike either hold or not hold. For if all things that are believed and that appear are true, then all things must be at once true and false (for many people hold beliefs contrary to one another, and think that those who do not share their opinions are mistaken; so the same thing must both be and not be); and if this is the case, all beliefs must be true (for those who are mistaken and those who are right hold opposite beliefs to one another; if, then, things are like this, everyone will be right). That both doctrines stem from the same way of thinking, then, is clear. But the same way of engaging with them does not suit everyone: some need persuasion, others force.

For those who have come to this view through being genuinely puzzled have an ignorance that is easily cured (since one responds not to their argument but to their thinking). But for those who say it for argument's sake, the cure is to refute the argument as it is expressed in speech and in words. Those who are genuinely puzzled have come to this opinion from perceptible things. The view that contradictories and contraries hold at the same time came from seeing contraries come to be out of the same thing. If, then, what is not cannot come to be, the thing must have existed beforehand as both alike—as Anaxagoras says that everything is mixed in everything, and Democritus too. For he too says that the void and the full

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are present alike in any part, though one of these is what is and the other what is not.

πρὸς μὲν οὖν τοὺς ἐκ τούτων ὑπολαμβάνοντας ἐροῦμεν ὅτι τρόπον μέν τινα ὀρθῶς λέγουσι τρόπον δέ τινα ἀγνοοῦσιν· τὸ γὰρ ὂν λέγεται διχῶς, ὥστ' ἔστιν ὂν τρόπον ἐνδέχεται γίγνεσθαί τι ἐκ τοῦ μὴ ὄντος, ἔστι δ' ὂν οὔ, καὶ ἅμα τὸ αὐτὸ εἶναι καὶ ὂν καὶ μὴ ὄν, ἀλλ' οὐ κατὰ ταὐτό [ὄν]· δυνάμει μὲν γὰρ ἐνδέχεται ἅμα ταὐτὸ εἶναι τὰ ἐναντία, ἐντελεχείᾳ δ' οὔ. ἔτι δ' ἀξιώσομεν αὐτοὺς ὑπολαμβάνειν καὶ ἄλλην τινὰ οὐσίαν εἶναι τῶν ὄντων ᾗ οὔτε κίνησις ὑπάρχει οὔτε φθορὰ οὔτε γένεσις τὸ παράπαν. [1009b] —ὅμοιως δὲ καὶ ἡ περὶ τὰ φαινόμενα ἀλήθεια ἐνίοις ἐκ τῶν αἰσθητῶν ἐλήλυθεν.

To those, then, whose belief rests on these grounds, we shall say that in a way they are right and in a way they are ignorant. For "what is" is said in two ways, so that there is a way in which something can come to be from what is not, and a way in which it cannot; and the same thing can at the same time be and not be, but not in the same respect. For potentially the same thing can be contraries at the same time, but in actuality it cannot. Further, we shall ask them to accept that among the things that are there is also another kind of substance, to which neither motion nor destruction nor generation belongs at all. [1009b] —Similarly, the view that what appears is true has come to some people from perceptible things.

1009b τὸ μὲν γὰρ ἀληθὲς οὐ πλήθει κρίνεσθαι οἴονται προσήκειν οὐδὲ ὀλιγότητι, τὸ δ' αὐτὸ τοῖς μὲν γλυκὺ γευομένοις δοκεῖν εἶναι τοῖς δὲ πικρόν, ὥστ' εἰ πάντες ἔκαμνον ἢ πάντες παρεφρόνουν, δύο δ' ἢ τρεῖς ὑγίαινον ἢ νοῦν εἶχον, δοκεῖν ἂν τούτους κάμνειν καὶ παραφρονεῖν τοὺς δ' ἄλλους οὔ· ἔτι δὲ καὶ πολλοῖς τῶν ἄλλων ζῴων τἀναντία [περὶ τῶν αὐτῶν] φαίνεσθαι καὶ ἡμῖν, καὶ αὐτῷ δὲ ἑκάστῳ πρὸς αὐτὸν οὐ ταὐτὰ κατὰ τὴν αἴσθησιν ἀεὶ δοκεῖν. ποῖα οὖν τούτων ἀληθῆ ἢ ψευδῆ, ἄδηλον· οὐθὲν γὰρ μᾶλλον τάδε ἢ τάδε ἀληθῆ, ἀλλ' ὁμοίως. διὸ Δημόκριτός γέ φησιν ἤτοι οὐθὲν εἶναι ἀληθὲς ἢ ἡμῖν γ' ἄδηλον.

For they think that the truth ought not to be decided by large or small numbers, and that the same thing seems sweet to some who taste it and bitter to others; so that if everyone were sick or everyone out of their minds, and two or three were healthy or in their right minds, it is these who would seem sick and out of their minds, and the others not. Further, to many of the other animals the same things appear contrary to how they appear to us; and even to each individual things do not always seem the same by perception. Which of these impressions are true or false, then, is unclear; for these are no more true than those, but equally so. That is why Democritus, for one, says that either nothing is true or it is at least unclear to us.

ὅλως δὲ διὰ τὸ ὑπολαμβάνειν φρόνησιν μὲν τὴν αἴσθησιν, ταύτην δ' εἶναι ἀλλοίωσιν, τὸ φαινόμενον κατὰ τὴν αἴσθησιν ἐξ ἀνάγκης ἀληθὲς εἶναί φασιν· ἐκ τούτων γὰρ καὶ Ἐμπεδοκλῆς καὶ Δημόκριτος καὶ τῶν ἄλλων ὡς ἔπος εἰπεῖν ἕκαστος τοιαύταις δόξαις γεγένηνται ἔνοχοι. καὶ γὰρ Ἐμπεδοκλῆς μεταβάλλοντας τὴν ἕξιν μεταβάλλειν φησὶ τὴν φρόνησιν· πρὸς παρεὸν γὰρ μῆτις ἐναύξεται ἀνθρώποισιν. καὶ ἐν ἑτέροις δὲ λέγει ὅτι ὅσσον ⟨δ'⟩ ἀλλοῖοι μετέφυν, τόσον ἄρ σφισιν αἰεὶ καὶ τὸ φρονεῖν ἀλλοῖα παρίστατο. καὶ Παρμενίδης δὲ ἀποφαίνεται τὸν αὐτὸν τρόπον· ὡς γὰρ ἑκάστοτ' ἔχει κρᾶσιν μελέων πολυκάμπτων, τὼς νόος ἀνθρώποισι παρίσταται· τὸ γὰρ αὐτὸ ἔστιν ὅπερ φρονέει, μελέων φύσις ἀνθρώποισιν καὶ πᾶσιν καὶ παντί· τὸ γὰρ πλέον ἐστὶ νόημα.

In general, it is because they suppose that thought is perception, and that perception is a kind of alteration, that they say that what appears in perception is necessarily true. For it is on these grounds that Empedocles and Democritus and, one might say, every one of the others have become caught up in opinions of this kind. Empedocles, for instance, says that when people change their condition they change their thinking: "for wisdom grows in humans in relation to what is present." And elsewhere he says: "as far as they changed and became other, so far always did other thoughts present themselves to them." Parmenides, too, declares the same thing: "For as at each time is the mixture of the much-bent limbs,

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so mind comes to humans; for the same thing
is what thinks—the nature of the limbs—in humans,
in all and in each; for what predominates is thought."[7]

Ἀναξαγόρου δὲ καὶ ἀπόφθεγμα μνημονεύεται πρὸς τῶν ἑταίρων τινάς, ὅτι τοιαῦτ' αὐτοῖς ἔσται τὰ ὄντα οἷα ἂν ὑπολάβωσιν. φασὶ δὲ καὶ τὸν Ὅμηρον ταύτην ἔχοντα φαίνεσθαι τὴν δόξαν, ὅτι ἐποίησε τὸν Ἕκτορα, ὡς ἐξέστη ὑπὸ τῆς πληγῆς, κεῖσθαι ἀλλοφρονέοντα, ὡς φρονοῦντας μὲν καὶ τοὺς παραφρονοῦντας ἀλλ' οὐ ταὐτά. δῆλον οὖν ὅτι, εἰ ἀμφότεραι φρονήσεις, καὶ τὰ ὄντα ἅμα οὕτω τε καὶ οὐχ οὕτως ἔχει. ᾗ καὶ χαλεπώτατον τὸ συμβαῖνόν ἐστιν· εἰ γὰρ οἱ μάλιστα τὸ ἐνδεχόμενον ἀληθὲς ἑωρακότες—οὗτοι δ' εἰσὶν οἱ μάλιστα ζητοῦντες αὐτὸ καὶ φιλοῦντες—οὗτοι τοιαύτας ἔχουσι τὰς δόξας καὶ ταῦτα ἀποφαίνονται περὶ τῆς ἀληθείας, πῶς οὐκ ἄξιον ἀθυμῆσαι τοὺς φιλοσοφεῖν ἐγχειροῦντας; τὸ γὰρ τὰ πετόμενα διώκειν τὸ ζητεῖν ἂν εἴη τὴν ἀλήθειαν.

A saying of Anaxagoras to some of his companions is also recorded: that things would be for them such as they supposed them to be. And they say that Homer too evidently held this opinion, since he made Hector, when he was knocked senseless by the blow, lie "thinking other thoughts"—as if even those out of their minds were thinking, only not the same thoughts. Clearly, then, if both are forms of thinking, things too are at the same time so and not so. And here the consequence is at its hardest. For if those who have seen as much of the truth as is possible—and these are the people who most seek it and love it—hold such opinions and make such declarations about the truth, how could those who set out to do philosophy not rightly lose heart? For seeking the truth would be chasing birds on the wing.[8]

1010a —αἴτιον δὲ τῆς δόξης τούτοις ὅτι περὶ τῶν ὄντων μὲν τὴν ἀλήθειαν ἐσκόπουν, τὰ δ' ὄντα ὑπέλαβον εἶναι τὰ αἰσθητὰ μόνον· ἐν δὲ τούτοις πολλὴ ἡ τοῦ ἀορίστου φύσις ἐνυπάρχει καὶ ἡ τοῦ ὄντος οὕτως ὥσπερ εἴπομεν· διὸ εἰκότως μὲν λέγουσιν, οὐκ ἀληθῆ δὲ λέγουσιν (οὕτω γὰρ ἁρμόττει μᾶλλον εἰπεῖν ἢ ὥσπερ Ἐπίχαρμος εἰς Ξενοφάνην). ἔτι δὲ πᾶσαν ὁρῶντες ταύτην κινουμένην τὴν φύσιν, κατὰ δὲ τοῦ μεταβάλλοντος οὐθὲν ἀληθευόμενον, περί γε τὸ πάντῃ πάντως μεταβάλλον οὐκ ἐνδέχεσθαι ἀληθεύειν.

—The reason for their opinion is that, while they were investigating the truth about the things that are, they supposed that the things that are were only perceptible things. And in these the nature of the indeterminate is very much present, and the nature of being in the way we described. So what they say is plausible, but it is not true (it is more fitting to put it this way than as Epicharmus put it against Xenophanes). Further, seeing that the whole of this natural world is in motion, and that nothing true can be said of what is changing, they concluded that one cannot say anything true about what is changing in every way and in every respect.[9]

ἐκ γὰρ ταύτης τῆς ὑπολήψεως ἐξήνθησεν ἡ ἀκροτάτη δόξα τῶν εἰρημένων, ἡ τῶν φασκόντων ἡρακλειτίζειν καὶ οἵαν Κρατύλος εἶχεν, ὃς τὸ τελευταῖον οὐθὲν ᾤετο δεῖν λέγειν ἀλλὰ τὸν δάκτυλον ἐκίνει μόνον, καὶ Ἡρακλείτῳ ἐπετίμα εἰπόντι ὅτι δὶς τῷ αὐτῷ ποταμῷ οὐκ ἔστιν ἐμβῆναι· αὐτὸς γὰρ ᾤετο οὐδ' ἅπαξ. ἡμεῖς δὲ καὶ πρὸς τοῦτον τὸν λόγον ἐροῦμεν ὅτι τὸ μὲν μεταβάλλον ὅτε μεταβάλλει ἔχει τινὰ αὐτοῖς λόγον μὴ οἴεσθαι εἶναι, καίτοι ἔστι γε ἀμφισβητήσιμον· τό τε γὰρ ἀποβάλλον ἔχει τι τοῦ ἀποβαλλομένου, καὶ τοῦ γιγνομένου ἤδη ἀνάγκη τι

For it was from this supposition that the most extreme of the views we have mentioned blossomed: the view of those who claim to follow Heraclitus, and the sort that Cratylus held. In the end he thought one should say nothing, and merely moved his finger; and he criticized Heraclitus for saying that you cannot step into the same river twice, since he himself thought you could not do it even once. But to this argument too we shall reply

7 The lines are quoted from the verse writings of Empedocles and Parmenides.
8 Hector is the Trojan champion of Homer's *Iliad*; in our text of Homer the phrase is not in fact used of him.
9 Epicharmus: a Sicilian comic poet of around 500 BC; his gibe against Xenophanes is lost.

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εἶναι, ὅλως τε εἰ φθείρεται, ὑπάρξει τι ὄν, καὶ εἰ γίγνεται, ἐξ οὗ γίγνεται καὶ ὑφ' οὗ γεννᾶται ἀναγκαῖον εἶναι, καὶ τοῦτο μὴ ἰέναι εἰς ἄπειρον.

ἀλλὰ ταῦτα παρέντες ἐκεῖνα λέγωμεν, ὅτι οὐ ταὐτό ἐστι τὸ μεταβάλλειν κατὰ τὸ ποσὸν καὶ κατὰ τὸ ποιόν· κατὰ μὲν οὖν τὸ ποσὸν ἕστω μὴ μένον, ἀλλὰ κατὰ τὸ εἶδος ἅπαντα γιγνώσκομεν. ἔτι δ' ἄξιον ἐπιτιμῆσαι τοῖς οὕτως ὑπολαμβάνουσιν, ὅτι καὶ αὐτῶν τῶν αἰσθητῶν ἐπὶ τῶν ἐλαττόνων τὸν ἀριθμὸν ἰδόντες οὕτως ἔχοντα περὶ ὅλου τοῦ οὐρανοῦ ὁμοίως ἀπεφήναντο· ὁ γὰρ περὶ ἡμᾶς τοῦ αἰσθητοῦ τόπος ἐν φθορᾷ καὶ γενέσει διατελεῖ μόνος ὤν, ἀλλ' οὗτος οὐθὲν ὡς εἰπεῖν μόριον τοῦ παντός ἐστιν, ὥστε δικαιότερον ἂν δι' ἐκεῖνα τούτων ἀπεψηφίσαντο ἢ διὰ ταῦτα ἐκείνων κατεψηφίσαντο. ἔτι δὲ δῆλον ὅτι καὶ πρὸς τούτους ταὐτὰ τοῖς πάλαι λεχθεῖσιν ἐροῦμεν· ὅτι γὰρ ἔστιν ἀκίνητός τις φύσις δεικτέον αὐτοῖς καὶ πειστέον αὐτούς.

καίτοι γε συμβαίνει τοῖς ἅμα φάσκουσιν εἶναι καὶ μὴ εἶναι ἠρεμεῖν μᾶλλον φάναι πάντα ἢ κινεῖσθαι· οὐ γὰρ ἔστιν εἰς ὅ τι μεταβαλεῖ· ἅπαντα γὰρ ὑπάρχει πᾶσιν. 1010b —περὶ δὲ τῆς ἀληθείας, ὡς οὐ πᾶν τὸ φαινόμενον ἀληθές, πρῶτον μὲν ὅτι οὐδ' ⟨εἰ⟩ ἡ αἴσθησις ⟨μὴ⟩ ψευδὴς τοῦ γε ἰδίου ἐστίν, ἀλλ' ἡ φαντασία οὐ ταὐτὸν τῇ αἰσθήσει. εἶτ' ἄξιον θαυμάσαι εἰ τοῦτ' ἀποροῦσι, πότερον τηλικαῦτά ἐστι τὰ μεγέθη καὶ τὰ χρώματα τοιαῦτα οἷα τοῖς ἄπωθεν φαίνεται ἢ οἷα τοῖς ἐγγύθεν, καὶ πότερον οἷα τοῖς ὑγιαίνουσιν ἢ οἷα τοῖς κάμνουσιν, καὶ βαρύτερα πότερον ἃ τοῖς ἀσθενοῦσιν ἢ ἃ τοῖς ἰσχύουσιν, καὶ ἀληθῆ πότερον ἃ τοῖς καθεύδουσιν ἢ ἃ τοῖς ἐγρηγορόσιν.

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that they do have some reason for thinking that what is changing, when it is changing, is not—though even this is disputable. For what is losing something still has something of what is being lost, and something of what is coming to be must already be. And in general, if something is perishing, there will be something that is; and if something is coming to be, there must be something from which it comes to be and something by which it is generated, and this cannot go on to infinity.

But let us leave these points aside and say this: changing in quantity and changing in quality are not the same. Let it be granted that in quantity a thing does not stay the same; but it is by its form that we know each thing. Further, those who hold this view deserve criticism because, having seen that this is how things are with perceptible things —and even among these, only with a minority— they made the same claim about the whole universe. For only the region of the perceptible world around us is continually subject to destruction and generation, and this is, so to speak, no part at all of the whole. So it would have been fairer to acquit this region for the sake of those other things than to condemn those for the sake of this. Further, it is clear that to these people too we shall say the same things we said long ago: we must show them, and persuade them, that there is a nature that is unchanging.

And yet those who say that things at once are and are not end up having to say that all things are at rest rather than in motion; for there is nothing into which anything could change, since everything already belongs to everything. 1010b — As for truth, and the claim that not everything that appears is true: first, even if perception, at least of its own proper object, is not false, still appearance is not the same thing as perception. Then again, it is surprising that they should be puzzled over whether magnitudes and colors are such as they appear to people at a distance or to people close by, and whether they are such as they appear to the healthy or to the sick, and whether things are heavier as they seem to the weak or as they seem to the strong, and whether things are true as they seem to those asleep or to those awake.

1010b

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ὅτι μὲν γὰρ οὐκ οἴονταί γε, φανερόν· οὐθεὶς γοῦν, ἐὰν ὑπολάβῃ νύκτωρ Ἀθήνῃσιν εἶναι ὢν ἐν Λιβύῃ, πορεύεται εἰς τὸ ᾠδεῖον. ἔτι δὲ περὶ τοῦ μέλλοντος, ὥσπερ καὶ Πλάτων λέγει, οὐ δήπου ὁμοίως κυρία ἡ τοῦ ἰατροῦ δόξα καὶ ἡ τοῦ ἀγνοοῦντος, οἷον περὶ τοῦ μέλλοντος ἔσεσθαι ὑγιοῦς ἢ μὴ μέλλοντος. ἔτι δὲ ἐπ' αὐτῶν τῶν αἰσθήσεων οὐχ ὁμοίως κυρία ἡ τοῦ ἀλλοτρίου καὶ ἰδίου ἢ τοῦ πλησίον καὶ τοῦ αὑτῆς, ἀλλὰ περὶ μὲν χρώματος ὄψις, οὐ γεῦσις, περὶ δὲ χυμοῦ γεῦσις, οὐκ ὄψις· ὧν ἑκάστη ἐν τῷ αὐτῷ χρόνῳ περὶ τὸ αὐτὸ οὐδέποτε φησιν ἅμα οὕτω καὶ οὐχ οὕτως ἔχειν. ἀλλ' οὐδὲ ἐν ἑτέρῳ χρόνῳ περί γε τὸ πάθος ἠμφισβήτησεν, ἀλλὰ περὶ τὸ ᾧ συμβέβηκε τὸ πάθος.

For it is evident that they don't really think so. At any rate, no one who supposes at night that he is in Athens, when he is in Libya, sets off for the Odeion. Further, about the future, as Plato too says, the opinion of a doctor and that of someone ignorant are surely not equally authoritative—about whether someone is going to be healthy or not, for instance. Further, among the senses themselves, a sense's verdict about an object foreign to it is not as authoritative as its verdict about its own object, nor is its verdict about a neighboring object as authoritative as about its own. About color it is sight, not taste, that has authority, and about flavor it is taste, not sight. And none of these ever says, at the same time and about the same thing, that it is at once so and not so. Nor even at different times does a sense disagree about the quality itself, but only about the thing to which the quality belongs.[10]

λέγω δ' οἷον ὁ μὲν αὐτὸς οἶνος δόξειεν ἂν ἢ μεταβαλὼν ἢ τοῦ σώματος μεταβαλόντος ὁτὲ μὲν εἶναι γλυκὺς ὁτὲ δὲ οὐ γλυκύς· ἀλλ' οὐ τό γε γλυκύ, οἷόν ἐστιν ὅταν ᾖ, οὐδεπώποτε μετέβαλεν, ἀλλ' ἀεὶ ἀληθεύει περὶ αὐτοῦ, καὶ ἔστιν ἐξ ἀνάγκης τὸ ἐσόμενον γλυκὺ τοιοῦτον. καίτοι τοῦτο ἀναιροῦσιν οὗτοι οἱ λόγοι ἅπαντες, ὥσπερ καὶ οὐσίαν μὴ εἶναι μηθενός, οὕτω μηδ' ἐξ ἀνάγκης μηθέν· τὸ γὰρ ἀναγκαῖον οὐκ ἐνδέχεται ἄλλως καὶ ἄλλως ἔχειν, ὥστ' εἴ τι ἔστιν ἐξ ἀνάγκης, οὐχ ἕξει οὕτω τε καὶ οὐχ οὕτως.—ὅλως τ' εἴπερ ἔστι τὸ αἰσθητὸν μόνον, οὐθὲν ἂν εἴη μὴ ὄντων τῶν ἐμψύχων· αἴσθησις γὰρ οὐκ ἂν εἴη.

I mean, for instance, that the same wine might seem sweet at one time and not sweet at another, either because it has changed or because one's body has changed. But the sweet itself, such as it is when it is present, has never changed; one is always right about it, and whatever is going to be sweet is necessarily of this kind. Yet all these arguments do away with this: just as they deny that anything has a substance, so they deny that anything is necessary. For what is necessary cannot be now one way and now another; so if anything is necessary, it will not be both so and not so. —And in general, if only the perceptible exists, nothing would exist if there were no living things; for there would be no perception.

τὸ μὲν οὖν μήτε τὰ αἰσθητὰ εἶναι μήτε τὰ αἰσθήματα ἴσως ἀληθές (τοῦ γὰρ αἰσθανομένου πάθος τοῦτό ἐστι), τὸ δὲ τὰ ὑποκείμενα μὴ εἶναι, ἃ ποιεῖ τὴν αἴσθησιν, καὶ ἄνευ αἰσθήσεως, ἀδύνατον. οὐ γὰρ δὴ ἥ γ' αἴσθησις αὐτὴ ἑαυτῆς ἐστίν, ἀλλ' ἔστι τι καὶ ἕτερον παρὰ τὴν αἴσθησιν, ὃ ἀνάγκη πρότερον εἶναι τῆς αἰσθήσεως· [1011a] τὸ γὰρ κινοῦν τοῦ κινουμένου φύσει πρότερόν ἐστι, κἂν εἰ λέγεται πρὸς ἄλληλα ταῦτα, οὐθὲν ἧττον.

Now it is perhaps true that there would then be neither perceptible qualities nor sensations (for these are an affection of the one who perceives). But that the underlying subjects which produce the perception should not exist even without perception is impossible. For perception is certainly not perception of itself; there is also something else besides the perception, which must be prior to the perception. [1011a] For what moves is by nature prior to what is moved—and this is no less so even if they are said relative to each other.

10 The Odeion was a concert hall in Athens; the reference to Plato is to his *Theaetetus*.

WHO IS TO JUDGE?

Against those who demand proof of everything and hold that whatever appears is true.

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1011a	εἰσὶ δέ τινες οἳ ἀποροῦσι καὶ τῶν ταῦτα πεπεισμένων καὶ τῶν τοὺς λόγους τούτους μόνον λεγόντων· ζητοῦσι γὰρ τίς ὁ κρινῶν τὸν ὑγιαίνοντα καὶ ὅλως τὸν περὶ ἕκαστα κρινοῦντα ὀρθῶς. τὰ δὲ τοιαῦτα ἀπορήματα ὅμοιά ἐστι τῷ ἀπορεῖν πότερον καθεύδομεν νῦν ἢ ἐγρηγόραμεν, δύνανται δ' αἱ ἀπορίαι αἱ τοιαῦται πᾶσαι τὸ αὐτό· πάντων γὰρ λόγον ἀξιοῦσιν εἶναι οὗτοι· ἀρχὴν γὰρ ζητοῦσι, καὶ ταύτην δι' ἀποδείξεως λαμβάνειν, ἐπεὶ ὅτι γε πεπεισμένοι οὐκ εἰσί, φανεροί εἰσιν ἐν ταῖς πράξεσιν. ἀλλ' ὅπερ εἴπομεν, τοῦτο αὐτῶν τὸ πάθος ἐστίν· λόγον γὰρ ζητοῦσιν ὧν οὐκ ἔστι λόγος· ἀποδείξεως γὰρ ἀρχὴ οὐκ ἀπόδειξίς ἐστιν.	There are some—both among those genuinely convinced of these views and among those who merely put forward these arguments—who raise a puzzle. They ask who is to judge who is healthy, and in general who is to judge rightly on each question. But puzzles like this are like being puzzled over whether we are now asleep or awake, and all such puzzles come to the same thing. For these people demand that there be an argument for everything: they are looking for a starting point, and they want to get it by demonstration—since it is evident from their actions that they are not actually convinced. But, as we said, this is their trouble: they seek an argument for things for which there is no argument. For the starting point of demonstration is not a demonstration.
	οὗτοι μὲν οὖν ῥᾳδίως ἂν τοῦτο πεισθεῖεν (ἔστι γὰρ οὐ χαλεπὸν λαβεῖν)· οἱ δ' ἐν τῷ λόγῳ τὴν βίαν μόνον ζητοῦντες ἀδύνατον ζητοῦσιν· ἐναντία γὰρ εἰπεῖν ἀξιοῦσιν, εὐθὺς ἐναντία λέγοντες. εἰ δὲ μὴ ἔστι πάντα πρός τι, ἀλλ' ἕνιά ἐστι καὶ αὐτὰ καθ' αὑτά, οὐκ ἂν εἴη πᾶν τὸ φαινόμενον ἀληθές· τὸ γὰρ φαινόμενον τινί ἐστι φαινόμενον· ὥστε ὁ λέγων ἅπαντα τὰ φαινόμενα εἶναι ἀληθῆ ἅπαντα ποιεῖ τὰ ὄντα πρός τι. διὸ καὶ φυλακτέον τοῖς τὴν βίαν ἐν τῷ λόγῳ ζητοῦσιν, ἅμα δὲ καὶ ὑπέχειν λόγον ἀξιοῦσιν, ὅτι οὐ τὸ φαινόμενον ἔστιν ἀλλὰ τὸ φαινόμενον ᾧ φαίνεται καὶ ὅτε φαίνεται καὶ ᾗ καὶ ὡς. ἂν δ' ὑπέχωσι μὲν λόγον, μὴ οὕτω δ' ὑπέχωσι, συμβήσεται αὐτοῖς τἀναντία ταχὺ λέγειν.	These people, then, could easily be persuaded of this (for it is not hard to grasp). But those who seek only to force their way in argument are seeking the impossible; for they demand the right to say contrary things, and in doing so they immediately say contrary things. But if not all things are relative, and some things also exist in their own right, not everything that appears would be true. For what appears appears to someone; so whoever says that all things that appear are true makes all things that are relative. That is why those who seek to force their way in argument, while also agreeing to submit to argument, must take care to say, not that what appears is, but that what appears is for the one to whom it appears, and when it appears, and in the respect and in the way in which it appears. And if they submit to argument but not in this way, they will soon find themselves saying contrary things.
	ἐνδέχεται γὰρ τὸ αὐτὸ κατὰ μὲν τὴν ὄψιν μέλι φαίνεσθαι τῇ δὲ γεύσει μή, καὶ τῶν ὀφθαλμῶν δυοῖν ὄντοιν μὴ ταὐτὰ ἑκατέρᾳ τῇ ὄψει, ἂν ὦσιν ἀνόμοιαι· ἐπεὶ πρός γε τοὺς διὰ τὰς πάλαι εἰρημένας αἰτίας τὸ φαινόμενον φάσκοντας ἀληθὲς εἶναι, καὶ διὰ τοῦτο πάνθ' ὁμοίως εἶναι ψευδῆ καὶ ἀληθῆ· οὔτε γὰρ ἅπασι ταὐτὰ φαίνεσθαι οὔτε ταὐτῷ ἀεὶ ταὐτά, ἀλλὰ πολλάκις τἀναντία κατὰ τὸν αὐτὸν χρόνον (ἡ μὲν γὰρ ἁφὴ δύο λέγει ἐν τῇ ἐπαλλάξει τῶν δακτύλων ἡ δ' ὄψις ἕν)·—ἀλλ' οὔ τι τῇ αὐτῇ γε καὶ	For the same thing can appear to be honey to sight but not to taste; and since we have two eyes, things may not appear the same to the sight of each eye, if the two are unlike. So much for these. As for those who, for the reasons given long ago, claim that what appears is true, and that therefore all things are alike false and true—since things do not appear the same to everyone, nor always the same to the same person, but often appear contrary at the same time (touch says there are two

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κατὰ τὸ αὐτὸ αἰσθήσει καὶ ὡσαύτως καὶ ἐν τῷ αὐτῷ χρόνῳ, ὥστε τοῦτ' ἂν εἴη ἀληθές.	objects when the fingers are crossed, but sight says one)—to them we reply: but surely not to the same sense, and in the same part of it, and in the same way, and at the same time; so that this, at least, would be true.
1011b ἀλλ' ἴσως διὰ τοῦτ' ἀνάγκη λέγειν τοῖς μὴ δι' ἀπορίαν ἀλλὰ λόγου χάριν λέγουσιν, ὅτι οὐκ ἔστιν ἀληθὲς τοῦτο ἀλλὰ τούτῳ ἀληθές. καὶ ὥσπερ δὴ πρότερον εἴρηται, ἀνάγκη πρός τι ποιεῖν ἅπαντα καὶ πρὸς δόξαν καὶ αἴσθησιν, ὥστ' οὔτε γέγονεν οὔτ' ἔσται οὐθὲν μηθενὸς προδοξάσαντος. εἰ δὲ γέγονεν ἢ ἔσται, δῆλον ὅτι οὐκ ἂν εἴη ἅπαντα πρὸς δόξαν. ἔτι εἰ ἕν, πρὸς ἓν ἢ πρὸς ὡρισμένον· καὶ εἰ τὸ αὐτὸ καὶ ἥμισυ καὶ ἴσον, ἀλλ' οὐ πρὸς τὸ διπλάσιόν γε τὸ ἴσον. πρὸς δὴ τὸ δοξάζον εἰ ταὐτὸ ἄνθρωπος καὶ τὸ δοξαζόμενον, οὐκ ἔσται ἄνθρωπος τὸ δοξάζον ἀλλὰ τὸ δοξαζόμενον. εἰ δ' ἕκαστον ἔσται πρὸς τὸ δοξάζον, πρὸς ἄπειρα ἔσται τῷ εἴδει τὸ δοξάζον.	But perhaps this is why those who argue not from puzzlement but for argument's sake must say, not that this is true, but that it is true for this person. And, as was said before, they must make everything relative—relative to opinion and perception—so that nothing has come to be or will be unless someone has first formed an opinion about it. But if something has come to be or will be without that, clearly not everything would be relative to opinion. Further, if a thing is one, it is relative to one thing, or to something definite; and even if the same thing is both half and equal, still the equal is not relative to the double. If, then, relative to the one who opines, "human being" and "what is opined" are the same, then the human being will not be the one who opines but what is opined. And if each thing is to be relative to the one who opines, the one who opines will be relative to things infinite in kind.
ὅτι μὲν οὖν βεβαιοτάτη δόξα πασῶν τὸ μὴ εἶναι ἀληθεῖς ἅμα τὰς ἀντικειμένας φάσεις, καὶ τί συμβαίνει τοῖς οὕτω λέγουσι, καὶ διὰ τί οὕτω λέγουσι, τοσαῦτα εἰρήσθω· ἐπεὶ δ' ἀδύνατον τὴν ἀντίφασιν ἅμα ἀληθεύεσθαι κατὰ τοῦ αὐτοῦ, φανερὸν ὅτι οὐδὲ τἀναντία ἅμα ὑπάρχειν ἐνδέχεται τῷ αὐτῷ· τῶν μὲν γὰρ ἐναντίων θάτερον στέρησίς ἐστιν οὐχ ἧττον, οὐσίας δὲ στέρησις· ἡ δὲ στέρησις ἀπόφασίς ἐστιν ἀπό τινος ὡρισμένου γένους· εἰ οὖν ἀδύνατον ἅμα καταφάναι καὶ ἀποφάναι ἀληθῶς, ἀδύνατον καὶ τἀναντία ὑπάρχειν ἅμα, ἀλλ' ἢ πῇ ἄμφω ἢ θάτερον μὲν πῇ θάτερον δὲ ἁπλῶς.	That the most certain of all beliefs is that opposed assertions are not true at the same time, what follows for those who say otherwise, and why they say so—let that be enough on these points. And since it is impossible for contradictories to be true of the same thing at the same time, it is evident that contraries cannot belong to the same thing at the same time either. For of two contraries, one is no less a privation—a privation of substance; and a privation is a denial from some definite genus. If, then, it is impossible to affirm and deny truly at the same time, it is also impossible for contraries to belong at the same time—except either both in some respect, or one in some respect and the other without qualification.

NOTHING BETWEEN CONTRADICTORIES

There is nothing between assertion and denial, as the definition of true and false shows.

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ἀλλὰ μὴν οὐδὲ μεταξὺ ἀντιφάσεως ἐνδέχεται εἶναι οὐθέν, ἀλλ' ἀνάγκη ἢ φάναι ἢ ἀποφάναι ἓν καθ' ἑνὸς ὁτιοῦν. δῆλον δὲ πρῶτον μὲν ὁρισαμένοις τί τὸ ἀληθὲς καὶ ψεῦδος. τὸ μὲν γὰρ λέγειν τὸ ὂν μὴ εἶναι ἢ τὸ μὴ ὂν εἶναι ψεῦδος, τὸ δὲ τὸ ὂν εἶναι καὶ τὸ μὴ ὂν μὴ εἶναι ἀληθές,	Nor, again, can there be anything in between contradictories: of any one thing we must either assert or deny any one thing. This is clear, first of all, once we define what the true and the false are. To say of what is that it is not, or of what is not that it

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ὥστε καὶ ὁ λέγων εἶναι ἢ μὴ ἀληθεύσει ἢ ψεύσεται· ἀλλ' οὔτε τὸ ὂν λέγεται μὴ εἶναι ἢ εἶναι οὔτε τὸ μὴ ὄν. ἔτι ἤτοι μεταξὺ ἔσται τῆς ἀντιφάσεως ὥσπερ τὸ φαιὸν μέλανος καὶ λευκοῦ, ἢ ὡς τὸ μηδέτερον ἀνθρώπου καὶ ἵππου.

εἰ μὲν οὖν οὕτως, οὐκ ἂν μεταβάλλοι (ἐκ μὴ ἀγαθοῦ γὰρ εἰς ἀγαθὸν μεταβάλλει ἢ ἐκ τούτου εἰς μὴ ἀγαθόν), νῦν δ' ἀεὶ φαίνεται (οὐ γὰρ ἔστι μεταβολὴ ἀλλ' ἢ εἰς τὰ ἀντικείμενα καὶ μεταξύ)· εἰ δ' ἔστι μεταξύ, καὶ οὕτως εἴη ἄν τις εἰς λευκὸν οὐκ ἐκ μὴ λευκοῦ γένεσις, νῦν δ' οὐχ ὁρᾶται. [1012a] ἔτι πᾶν τὸ διανοητὸν καὶ νοητὸν ἡ διάνοια ἢ κατάφησιν ἢ ἀπόφησιν—τοῦτο δ' ἐξ ὁρισμοῦ δῆλον—ὅταν ἀληθεύῃ ἢ ψεύδηται· ὅταν μὲν ὡδὶ συνθῇ φᾶσα ἢ ἀποφᾶσα, ἀληθεύει, ὅταν δὲ ὡδί, ψεύδεται. ἔτι παρὰ πάσας δεῖ εἶναι τὰς ἀντιφάσεις, εἰ μὴ λόγου ἕνεκα λέγεται· ὥστε καὶ οὔτε ἀληθεύσει τις οὔτ' οὐκ ἀληθεύσει, καὶ παρὰ τὸ ὂν καὶ τὸ μὴ ὂν ἔσται, ὥστε καὶ παρὰ γένεσιν καὶ φθορὰν μεταβολή τις ἔσται.

1012a ἔτι ἐν ὅσοις γένεσιν ἡ ἀπόφασις τὸ ἐναντίον ἐπιφέρει, καὶ ἐν τούτοις ἔσται, οἷον ἐν ἀριθμοῖς οὔτε περιττὸς οὔτε οὐ περιττὸς ἀριθμός· ἀλλ' ἀδύνατον· ἐκ τοῦ ὁρισμοῦ δὲ δῆλον. ἔτι εἰς ἄπειρον βαδιεῖται, καὶ οὐ μόνον ἡμιόλια τὰ ὄντα ἔσται ἀλλὰ πλείω. πάλιν γὰρ ἔσται ἀποφῆσαι τοῦτο πρὸς τὴν φάσιν καὶ τὴν ἀπόφασιν, καὶ τοῦτ' ἔσται τι· ἡ γὰρ οὐσία ἐστί τις αὐτοῦ ἄλλη. ἔτι ὅταν ἐρομένου εἰ λευκόν ἐστιν εἴπῃ ὅτι οὔ, οὐθὲν ἄλλο ἀποπέφηκεν ἢ τὸ εἶναι· ἀπόφασις δὲ τὸ μὴ εἶναι. ἐλήλυθε δ' ἐνίοις αὕτη ἡ δόξα ὥσπερ καὶ ἄλλαι τῶν παραδόξων· ὅταν γὰρ λύειν μὴ δύνωνται λόγους ἐριστικούς, ἐνδόντες τῷ λόγῳ σύμφασιν ἀληθὲς εἶναι τὸ συλλογισθέν. οἱ μὲν οὖν διὰ τοιαύτην αἰτίαν λέγουσιν, οἱ δὲ διὰ τὸ πάντων ζητεῖν λόγον.

ENGLISH

is, is false; to say of what is that it is, and of what is not that it is not, is true. So whoever says of anything that it is, or that it is not, will speak either truly or falsely. But on the view in question, neither what is nor what is not is said either to be or not to be. Further, what is between the contradictories will be in between either as gray is between black and white, or as what is neither is between a human being and a horse.

If it is in the second way, there could be no change (for change is from not good to good, or from good to not good); but in fact change is always evidently occurring (for there is no change except into opposites and what is between them). And if there is an intermediate in the first way, then here too there would be a coming to be white that was not from not-white; but in fact this is not observed. [1012a] Further, thought either affirms or denies every object of thought and understanding—this is clear from the definition—whenever it is right or wrong. When it puts things together in one way, in asserting or denying, it is right; when in another, it is wrong. Further, there would have to be an intermediate alongside every pair of contradictories, unless one is talking just for argument's sake. So one would be neither right nor not right; and there will be something besides what is and what is not, so that there will also be some change besides generation and destruction.

Further, in those genera in which the negation brings in the contrary, there will be an intermediate too—in numbers, for instance, a number that is neither odd nor not odd. But that is impossible, as is clear from the definition. Further, the process will go on to infinity, and the things that are will be not only half again as many but more. For again it will be possible to deny this intermediate with reference both to the assertion and to the denial, and this will be something; for its substance is something distinct. Further, when someone asked whether a thing is white says "no," he has denied nothing but its being; and not being is a denial. This opinion has come to some people in the same way as other paradoxes: when they cannot refute contentious arguments, they give in to the argument and agree that the conclusion is true. Some, then, say it for this reason, others because they seek an argument for everything.

GREEK

ENGLISH

ἀρχὴ δὲ πρὸς ἅπαντας τούτους ἐξ ὁρισμοῦ. ὁρισμὸς δὲ γίγνεται ἐκ τοῦ σημαίνειν τι ἀναγκαῖον εἶναι αὐτούς· ὁ γὰρ λόγος οὗ τὸ ὄνομα σημεῖον ὁρισμὸς ἔσται. ἔοικε δ' ὁ μὲν Ἡρακλείτου λόγος, λέγων πάντα εἶναι καὶ μὴ εἶναι, ἅπαντα ἀληθῆ ποιεῖν, ὁ δ' Ἀναξαγόρου, εἶναί τι μεταξὺ τῆς ἀντιφάσεως, πάντα ψευδῆ· ὅταν γὰρ μιχθῇ, οὔτε ἀγαθὸν οὔτε οὐκ ἀγαθὸν τὸ μῖγμα, ὥστ' οὐδὲν εἰπεῖν ἀληθές.

The starting point in dealing with all these people is definition. And a definition results from their having to signify something; for the account of which the name is a sign will be a definition. Heraclitus' doctrine, in saying that all things are and are not, seems to make everything true, while Anaxagoras', in saying that there is something between contradictories, seems to make everything false. For when things are mixed, the mixture is neither good nor not good, so that one can say nothing true.

NOT EVERYTHING TRUE, NOT EVERYTHING FALSE

Claims that everything is true or false, or at rest or in motion, refute themselves.

GREEK

ENGLISH

διωρισμένων δὲ τούτων φανερὸν ὅτι καὶ τὰ μοναχῶς λεγόμενα καὶ κατὰ πάντων ἀδύνατον ὑπάρχειν ὥσπερ τινὲς λέγουσιν, οἱ μὲν οὐθὲν φάσκοντες ἀληθὲς εἶναι (οὐθὲν γὰρ κωλύειν φασὶν οὕτως ἅπαντα εἶναι ὥσπερ τὸ τὴν διάμετρον σύμμετρον εἶναι), οἱ δὲ πάντ' ἀληθῆ. σχεδὸν γὰρ οὗτοι οἱ λόγοι οἱ αὐτοὶ τῷ Ἡρακλείτου· ὁ γὰρ λέγων ὅτι πάντ' ἀληθῆ καὶ πάντα ψευδῆ, καὶ χωρὶς λέγει τῶν λόγων ἑκάτερον τούτων, [1012b] ὥστ' εἴπερ ἀδύνατα ἐκεῖνα, καὶ ταῦτα ἀδύνατον εἶναι. ἔτι δὲ φανερῶς ἀντιφάσεις εἰσὶν ἃς οὐχ οἷόν τε ἅμα ἀληθεῖς εἶναι—οὐδὲ δὴ ψευδεῖς πάσας· καίτοι δόξειέ γ' ἂν μᾶλλον ἐνδέχεσθαι ἐκ τῶν εἰρημένων.

With these points settled, it is evident that the one-sided claims made about everything cannot hold, as some assert they do—some saying that nothing is true (for they say nothing prevents every statement from being like the statement that the diagonal is commensurable), others that everything is true. For these arguments are practically the same as Heraclitus'. Whoever says that all things are true and all things false also says each of these claims separately, [1012b] so that if the combined claims are impossible, these must be impossible too. Further, there are evidently contradictories that cannot be true at the same time—nor, for that matter, all false; although, from what has been said, that would seem more possible.[11]

1012b ἀλλὰ πρὸς πάντας τοὺς τοιούτους λόγους αἰτεῖσθαι δεῖ, καθάπερ ἐλέχθη καὶ ἐν τοῖς ἐπάνω λόγοις, οὐχὶ εἶναί τι ἢ μὴ εἶναι ἀλλὰ σημαίνειν τι, ὥστε ἐξ ὁρισμοῦ διαλεκτέον λαβόντας τί σημαίνει τὸ ψεῦδος ἢ τὸ ἀληθές. εἰ δὲ μηθὲν ἄλλο τὸ ἀληθὲς φάναι ἢ ⟨ὃ⟩ ἀποφάναι ψεῦδός ἐστιν, ἀδύνατον πάντα ψευδῆ εἶναι· ἀνάγκη γὰρ τῆς ἀντιφάσεως θάτερον εἶναι μόριον ἀληθές. ἔτι εἰ πᾶν ἢ φάναι ἢ ἀποφάναι ἀναγκαῖον, ἀδύνατον ἀμφότερα ψευδῆ εἶναι· θάτερον γὰρ μόριον τῆς ἀντιφάσεως ψεῦδός ἐστιν. συμβαίνει δὴ καὶ τὸ θρυλούμενον πᾶσι τοῖς τοιούτοις λόγοις, αὐτοὺς ἑαυτοὺς ἀναιρεῖν. ὁ μὲν γὰρ πάντα ἀληθῆ λέγων καὶ τὸν ἐναντίον αὑτοῦ λόγον ἀληθῆ ποιεῖ, ὥστε τὸν ἑαυτοῦ οὐκ ἀληθῆ (ὁ γὰρ ἐναντίος οὗ φησιν αὐτὸν ἀληθῆ), ὁ δὲ πάντα ψευδῆ καὶ αὐτὸς αὑτόν.

But against all such arguments one must demand, as was also said in the discussion above, not that they say that something is or is not, but that they signify something. So one must argue from a definition, having grasped what "false" and "true" signify. And if what it is true to assert is nothing other than what it is false to deny, it is impossible for everything to be false; for one part of the contradiction must be true. Further, if it is necessary either to assert or to deny everything, it is impossible for both to be false; for one part of the contradiction is false. And so all such arguments meet the much-repeated fate of refuting themselves. For whoever says that everything is true makes the statement contrary to his own true as well, and so his own not true (for the contrary

11 That the diagonal of a square is commensurable with its side was the standard example of an impossible falsehood.

GREEK

ENGLISH

statement says that his is not true); and whoever says that everything is false makes himself false as well.

ἐὰν δ' ἐξαιρῶνται ὁ μὲν τὸν ἐναντίον ὡς οὐκ ἀληθὴς μόνος ἐστίν, ὁ δὲ τὸν αὑτοῦ ὡς οὐ ψευδής, οὐδὲν ἧττον ἀπείρους συμβαίνει αὐτοῖς αἰτεῖσθαι λόγους ἀληθεῖς καὶ ψευδεῖς· ὁ γὰρ λέγων τὸν ἀληθῆ λόγον ἀληθῆ ἀληθής, τοῦτο δ' εἰς ἄπειρον βαδιεῖται.—φανερὸν δ' ὅτι οὐδ' οἱ πάντα ἠρεμεῖν λέγοντες ἀληθῆ λέγουσιν οὐδ' οἱ πάντα κινεῖσθαι. εἰ μὲν γὰρ ἠρεμεῖ πάντα, ἀεὶ ταὐτὰ ἀληθῆ καὶ ψευδῆ ἔσται, φαίνεται δὲ τοῦτο μεταβάλλον (ὁ γὰρ λέγων ποτὲ αὐτὸς οὐκ ἦν καὶ πάλιν οὐκ ἔσται)· εἰ δὲ πάντα κινεῖται, οὐθὲν ἔσται ἀληθές· πάντα ἄρα ψευδῆ· ἀλλὰ δέδεικται ὅτι ἀδύνατον. ἔτι ἀνάγκη τὸ ὂν μεταβάλλειν· ἔκ τινος γὰρ εἴς τι ἡ μεταβολή.

And if they make exceptions—the one saying that the contrary statement alone is not true, the other that his own alone is not false—they are nonetheless led to posit infinitely many true and false statements. For the statement that says the true statement is true is true, and this will go on to infinity. —It is evident, too, that neither those who say all things are at rest nor those who say all things are in motion speak truly. For if all things are at rest, the same statements will always be true and false; but this evidently changes (for the one who says it himself once was not, and again will not be). And if all things are in motion, nothing will be true; everything, then, will be false; but it has been shown that this is impossible. Further, what changes must be something that is; for change is from something into something.

ἀλλὰ μὴν οὐδὲ πάντα ἠρεμεῖ ἢ κινεῖται ποτέ, ἀεὶ δ' οὐθέν· ἔστι γάρ τι ὃ ἀεὶ κινεῖ τὰ κινούμενα, καὶ τὸ πρῶτον κινοῦν ἀκίνητον αὐτό.

Nor, again, are all things sometimes at rest and sometimes in motion, with nothing always so; for there is something that always moves the things that are moved, and the first mover is itself unmoved.

Book Delta (V)

A dictionary of philosophical terms.

CHAPTER 1

GREEK

ἀρχὴ λέγεται ἡ μὲν ὅθεν ἄν τις τοῦ πράγματος κινηθείη πρῶτον, οἷον τοῦ μήκους καὶ ὁδοῦ ἐντεῦθεν μὲν αὕτη ἀρχή, ἐξ ἐναντίας δὲ ἑτέρα· 1013a ἡ δὲ ὅθεν ἂν κάλλιστα ἕκαστον γένοιτο, οἷον καὶ μαθήσεως οὐκ ἀπὸ τοῦ πρώτου καὶ τῆς τοῦ πράγματος ἀρχῆς ἐνίοτε ἀρκτέον ἀλλ' ὅθεν ῥᾷστ' ἂν μάθοι· ἡ δὲ ὅθεν πρῶτον γίγνεται ἐνυπάρχοντος, οἷον ὡς πλοίου τρόπις καὶ οἰκίας θεμέλιος, καὶ τῶν ζῴων οἱ μὲν καρδίαν οἱ δὲ ἐγκέφαλον οἱ δ' ὅ τι ἂν τύχωσι τοιοῦτον ὑπολαμβάνουσιν· ἡ δὲ ὅθεν γίγνεται πρῶτον μὴ ἐνυπάρχοντος καὶ ὅθεν πρῶτον ἡ κίνησις πέφυκεν ἄρχεσθαι καὶ ἡ μεταβολή, οἷον τὸ τέκνον ἐκ τοῦ πατρὸς καὶ τῆς μητρὸς καὶ ἡ μάχη ἐκ τῆς λοιδορίας· ἡ δὲ οὗ κατὰ προαίρεσιν κινεῖται τὰ κινούμενα καὶ μεταβάλλει τὰ μεταβάλλοντα, ὥσπερ αἵ τε κατὰ πόλεις ἀρχαὶ καὶ αἱ δυναστεῖαι καὶ αἱ βασιλεῖαι καὶ τυραννίδες ἀρχαὶ λέγονται καὶ αἱ τέχναι, καὶ τούτων αἱ ἀρχιτεκτονικαὶ μάλιστα.

ENGLISH

"Principle" (archē) means, in one sense, the part of a thing from which one would first move: of a line or a road, for instance, this is the starting point from this end, and a different one from the opposite end. 1013a In another sense it is that from which each thing would best come to be—as with learning, where sometimes one should begin not from what is first, the starting point of the subject, but from where one would learn most easily. In another sense it is that from which, as a part present within it, a thing first comes to be—as the keel of a ship and the foundation of a house; and in animals some suppose it is the heart, others the brain, others whatever other such part they happen to pick. In another sense it is that from which, not as a part present within it, a thing first comes to be, and from which motion and change naturally first begin—as the child comes from its father and mother, and the fight from the abuse. In another sense it is that by whose decision the things that are moved are moved and the things that change change—in the way that the ruling offices in cities, and dynasties, kingships and tyrannies, are called archai, and so are the crafts, above all the master crafts.[1]

1013a ἔτι ὅθεν γνωστὸν τὸ πρᾶγμα πρῶτον, καὶ αὕτη ἀρχὴ λέγεται τοῦ πράγματος, οἷον τῶν ἀποδείξεων αἱ ὑποθέσεις. ἰσαχῶς δὲ καὶ τὰ αἴτια λέγεται· πάντα γὰρ τὰ αἴτια ἀρχαί. πασῶν μὲν οὖν κοινὸν τῶν ἀρχῶν τὸ πρῶτον εἶναι ὅθεν ἢ ἔστιν ἢ γίγνεται ἢ γιγνώσκεται· τούτων δὲ αἱ μὲν ἐνυπάρχουσαί εἰσιν αἱ δὲ ἐκτός. διὸ ἥ τε φύσις ἀρχὴ καὶ τὸ στοιχεῖον καὶ ἡ διάνοια καὶ ἡ προαίρεσις καὶ οὐσία καὶ τὸ οὗ ἕνεκα· πολλῶν γὰρ καὶ τοῦ γνῶναι καὶ τῆς κινήσεως ἀρχὴ τἀγαθὸν καὶ τὸ καλόν.

Further, that from which a thing is first known is also called its principle—as the hypotheses are of demonstrations. "Cause" is said in as many ways; for all causes are principles. What is common to all principles, then, is to be the first thing from which something either is or comes to be or is known; and of these some are present within the thing and others are outside it. That is why nature is a principle, and so is the element, and thought, and decision, and substance, and that for the sake of which; for the good and the fine are the prin-

1 Book Δ is a philosophical lexicon: each chapter sets out the different senses of a key term.

GREEK

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ciple both of knowing and of motion for many things.

FOUR KINDS OF CAUSE

A cause is the matter, the form, the source of change, or the end, and causes combine in many ways.

GREEK

ENGLISH

αἴτιον λέγεται ἕνα μὲν τρόπον ἐξ οὗ γίγνεταί τι ἐνυπάρχοντος, οἷον ὁ χαλκὸς τοῦ ἀνδριάντος καὶ ὁ ἄργυρος τῆς φιάλης καὶ τὰ τούτων γένη· ἄλλον δὲ τὸ εἶδος καὶ τὸ παράδειγμα, τοῦτο δ' ἐστὶν ὁ λόγος τοῦ τί ἦν εἶναι καὶ τὰ τούτου γένη (οἷον τοῦ διὰ πασῶν τὸ δύο πρὸς ἓν καὶ ὅλως ὁ ἀριθμός) καὶ τὰ μέρη τὰ ἐν τῷ λόγῳ. ἔτι ὅθεν ἡ ἀρχὴ τῆς μεταβολῆς ἡ πρώτη ἢ τῆς ἠρεμήσεως, οἷον ὁ βουλεύσας αἴτιος, καὶ ὁ πατὴρ τοῦ τέκνου καὶ ὅλως τὸ ποιοῦν τοῦ ποιουμένου καὶ τὸ μεταβλητικὸν τοῦ μεταβάλλοντος. ἔτι ὡς τὸ τέλος· τοῦτο δ' ἐστὶ τὸ οὗ ἕνεκα, οἷον τοῦ περιπατεῖν ἡ ὑγίεια. διὰ τί γὰρ περιπατεῖ; φαμέν. ἵνα ὑγιαίνῃ. καὶ εἰπόντες οὕτως οἰόμεθα ἀποδεδωκέναι τὸ αἴτιον.

"Cause" means, in one way, that out of which, as something present within it, a thing comes to be—for instance, the bronze of the statue and the silver of the bowl, and the genera of these. In another way it means the form and the pattern: that is, the account of the essence, and the genera of this (for instance, of the octave, the ratio of two to one, and number in general), and the parts in the account. Further, it means that from which the first beginning of change or of rest comes—for instance, the person who has deliberated is a cause, and the father is the cause of the child, and in general the maker of what is made and what brings about change of what changes. Further, it means the end, that is, that for the sake of which—as health is the cause of walking. For why does he walk? "To be healthy," we say; and in saying this we think we have given the cause.[2]

καὶ ὅσα δὴ κινήσαντος ἄλλου μεταξὺ γίγνεται τοῦ τέλους, [1013b] οἷον τῆς ὑγιείας ἡ ἰσχνασία ἢ ἡ κάθαρσις ἢ τὰ φάρμακα ἢ τὰ ὄργανα· πάντα γὰρ ταῦτα τοῦ τέλους ἕνεκά ἐστι, διαφέρει δὲ ἀλλήλων ὡς ὄντα τὰ μὲν ὄργανα τὰ δ' ἔργα. τὰ μὲν οὖν αἴτια σχεδὸν τοσαυταχῶς λέγεται, συμβαίνει δὲ πολλαχῶς λεγομένων τῶν αἰτίων καὶ πολλὰ τοῦ αὐτοῦ αἴτια εἶναι οὐ κατὰ συμβεβηκός (οἷον τοῦ ἀνδριάντος καὶ ἡ ἀνδριαντοποιητικὴ καὶ ὁ χαλκὸς οὐ καθ' ἕτερόν τι ἀλλ' ᾗ ἀνδριάς· ἀλλ' οὐ τὸν αὐτὸν τρόπον ἀλλὰ τὸ μὲν ὡς ὕλη τὸ δ' ὡς ὅθεν ἡ κίνησις), καὶ ἀλλήλων αἴτια (οἷον τὸ πονεῖν τῆς εὐεξίας καὶ αὕτη τοῦ πονεῖν· ἀλλ' οὐ τὸν αὐτὸν τρόπον ἀλλὰ τὸ μὲν ὡς τέλος τὸ δ' ὡς ἀρχὴ κινήσεως).

And so too with all the things that come in between, once something else has set the motion going, on the way to the end— [1013b] as slimming, purging, drugs or instruments come before health. All these are for the sake of the end, but they differ from one another in that some are instruments and others are actions. Causes, then, are said in roughly this many ways. And since causes are said in many ways, it follows that there are several causes of the same thing, and not accidentally—of the statue, for instance, both the sculptor's craft and the bronze, not in virtue of anything else but as a statue. But they are not causes in the same way: one is a cause as matter, the other as that from which the motion comes. Things can also be causes of each other—exercise, for instance, of fitness, and fitness of exercise. But again not in the same way: one as end, the other as principle of motion.

1013b ἔτι δὲ ταὐτὸ τῶν ἐναντίων ἐστίν· ὃ γὰρ παρὸν αἴτιον τουδί, τοῦτ' ἀπὸν αἰτιώμεθα ἐνίοτε τοῦ ἐναντίου, οἷον τὴν ἀπουσίαν τοῦ κυβερνήτου τῆς ἀνατροπῆς, οὗ ἦν ἡ

Further, the same thing is the cause of contraries. For what by its presence is the cause of one thing, we sometimes blame by its absence for the con-

2 In music an octave corresponds to the ratio two to one (for instance, of the lengths of two strings).

GREEK

παρουσία αἰτία τῆς σωτηρίας· ἄμφω δέ, καὶ ἡ παρουσία καὶ ἡ στέρησις, αἴτια ὡς κινοῦντα.—ἅπαντα δὲ τὰ νῦν εἰρημένα αἴτια εἰς τέτταρας τρόπους πίπτει τοὺς φανερωτάτους. τὰ μὲν γὰρ στοιχεῖα τῶν συλλαβῶν καὶ ἡ ὕλη τῶν σκευαστῶν καὶ τὸ πῦρ καὶ ἡ γῆ καὶ τὰ τοιαῦτα πάντα τῶν σωμάτων καὶ τὰ μέρη τοῦ ὅλου καὶ αἱ ὑποθέσεις τοῦ συμπεράσματος ὡς τὸ ἐξ οὗ αἴτιά ἐστιν· τούτων δὲ τὰ μὲν ὡς τὸ ὑποκείμενον, οἷον τὰ μέρη, τὰ δὲ ὡς τὸ τί ἦν εἶναι, τό τε ὅλον καὶ ἡ σύνθεσις καὶ τὸ εἶδος.

τὸ δὲ σπέρμα καὶ ὁ ἰατρὸς καὶ ὁ βουλεύσας καὶ ὅλως τὸ ποιοῦν, πάντα ὅθεν ἡ ἀρχὴ τῆς μεταβολῆς ἢ στάσεως. τὰ δ' ὡς τὸ τέλος καὶ τἀγαθὸν τῶν ἄλλων· τὸ γὰρ οὗ ἕνεκα βέλτιστον καὶ τέλος τῶν ἄλλων ἐθέλει εἶναι· διαφερέτω δὲ μηδὲν αὐτὸ εἰπεῖν ἀγαθὸν ἢ φαινόμενον ἀγαθόν.—τὰ μὲν οὖν αἴτια ταῦτα καὶ τοσαῦτά ἐστι τῷ εἴδει, τρόποι δὲ τῶν αἰτίων ἀριθμῷ μέν εἰσι πολλοί, κεφαλαιούμενοι δὲ καὶ οὗτοι ἐλάττους. λέγονται γὰρ αἴτια πολλαχῶς, καὶ αὐτῶν τῶν ὁμοειδῶν προτέρως καὶ ὑστέρως ἄλλο ἄλλου, οἷον ὑγιείας ὁ ἰατρὸς καὶ ὁ τεχνίτης, καὶ τοῦ διὰ πασῶν τὸ διπλάσιον καὶ ἀριθμός, καὶ ἀεὶ τὰ περιέχοντα ὁτιοῦν τῶν καθ' ἕκαστα.

ἔτι δ' ὡς τὸ συμβεβηκὸς καὶ τὰ τούτων γένη, οἷον ἀνδριάντος ἄλλως Πολύκλειτος καὶ ἄλλως ἀνδριαντοποιός, ὅτι συμβέβηκε τῷ ἀνδριαντοποιῷ Πολυκλείτῳ εἶναι· 1014a καὶ τὰ περιέχοντα δὲ τὸ συμβεβηκός, οἷον ἄνθρωπος αἴτιος ἀνδριάντος, ἢ καὶ ὅλως ζῷον, ὅτι ὁ Πολύκλειτος ἄνθρωπος ὁ δὲ ἄνθρωπος ζῷον. ἔστι δὲ καὶ τῶν συμβεβηκότων ἄλλα ἄλλων πορρώτερον καὶ ἐγγύτερον, οἷον εἰ ὁ λευκὸς καὶ ὁ μουσικὸς αἴτιος λέγοιτο τοῦ ἀνδριάντος, ἀλλὰ μὴ μόνον Πολύκλειτος ἢ ἄνθρωπος. παρὰ πάντα δὲ καὶ τὰ οἰκείως λεγόμενα καὶ τὰ κατὰ συμβεβηκός, τὰ μὲν ὡς δυνάμενα λέγεται τὰ δ' ὡς ἐνεργοῦντα, οἷον τοῦ οἰκοδομεῖσθαι οἰκοδόμος ἢ οἰκοδομῶν οἰκοδόμος.

1014a ὁμοίως δὲ λεχθήσεται καὶ ἐφ' ὧν αἴτια τὰ αἴτια τοῖς εἰρημένοις, οἷον τοῦδε τοῦ ἀνδριάντος ἢ ἀνδριάντος ἢ

ENGLISH

trary—for instance, we blame the pilot's absence for the capsizing, when his presence was the cause of the ship's safety. And both of these, the presence and the privation, are causes as movers. —All the causes just mentioned fall into four most evident types. The letters of syllables, the matter of manufactured things, fire and earth and all such elements of bodies, the parts of the whole, and the premises of the conclusion are causes as that out of which. Of these, some are causes as the underlying subject, such as the parts; others as the essence—the whole, the composition and the form.

The seed, the doctor, the person who has deliberated, and in general the maker—all these are causes as that from which the beginning of change or of rest comes. The rest are causes as the end and the good of the other things; for that for the sake of which tends to be what is best and the end of the other things. Let it make no difference whether we call it the good or the apparent good. —These, then, are the causes, and this is how many kinds there are. The modes of causes are many in number, but these too become fewer when summed up. For causes are spoken of in many ways, and even among those of the same kind one is prior and another posterior—for instance, of health the doctor and the expert, and of the octave the double and number, and always the classes that include any of the particulars.

Further, there are causes as accident, and the genera of these—for instance, of a statue Polyclitus is a cause in one way and the sculptor in another, because it is accidental to the sculptor to be Polyclitus. 1014a And so are the classes that include the accident—for instance, man is a cause of the statue, or even animal in general, because Polyclitus is a man and man is an animal. Among accidents, too, some are more remote and some nearer —as if the pale man or the musician were called the cause of the statue, and not merely Polyclitus or man. And besides all these, both those called causes in the proper sense and those called causes accidentally, some are called causes as having a capacity, and others as actively at work—of a house's being built, for instance, the builder, or the builder building.[3]

The things of which the causes are causes will be spoken of in the same way as the causes just men-

GREEK

ὅλως εἰκόνος, καὶ χαλκοῦ τοῦδε ἢ χαλκοῦ ἢ ὅλως ὕλης· καὶ ἐπὶ τῶν συμβεβηκότων ὡσαύτως. ἔτι δὲ συμπλεκόμενα καὶ ταῦτα κἀκεῖνα λεχθήσεται, οἷον οὐ Πολύκλειτος οὐδὲ ἀνδριαντοποιὸς ἀλλὰ Πολύκλειτος ἀνδριαντοποιός. ἀλλ' ὅμως ἅπαντά γε ταῦτ' ἐστὶ τὸ μὲν πλῆθος ἕξ, λεγόμενα δὲ διχῶς· ἢ γὰρ ὡς τὸ καθ' ἕκαστον ἢ ὡς τὸ γένος, ἢ ὡς τὸ συμβεβηκὸς ἢ ὡς τὸ γένος τοῦ συμβεβηκότος, ἢ ὡς συμπλεκόμενα ταῦτα ἢ ὡς ἁπλῶς λεγόμενα, πάντα δὲ ἢ ὡς ἐνεργοῦντα ἢ κατὰ δύναμιν.

διαφέρει δὲ τοσοῦτον, ὅτι τὰ μὲν ἐνεργοῦντα καὶ τὰ καθ' ἕκαστον ἅμα ἔστι καὶ οὐκ ἔστι καὶ ὧν αἴτια, οἷον ὅδε ὁ ἰατρεύων τῷδε τῷ ὑγιαζομένῳ καὶ ὅδε ὁ οἰκοδόμος τῷδε τῷ οἰκοδομουμένῳ, τὰ δὲ κατὰ δύναμιν οὐκ ἀεί· φθείρεται γὰρ οὐχ ἅμα ἡ οἰκία καὶ ὁ οἰκοδόμος.

ENGLISH

tioned—for instance, this statue, or a statue, or an image in general; and this bronze, or bronze, or matter in general; and likewise with accidents. Further, both these and those will be spoken of in combination—for instance, not Polyclitus, nor the sculptor, but Polyclitus the sculptor. Still, all these come to six in number, each spoken of in two ways: either as the particular or as the genus; either as the accident or as the genus of the accident; either in combination or said simply; and all of them either as actively at work or in virtue of capacity.

The difference is this much: causes that are actively at work, and particular causes, exist and cease to exist at the same time as the things of which they are causes—this person healing, for instance, with this person being healed, and this builder with this thing being built—whereas causes in virtue of capacity do not always do so. For the house and the builder do not perish at the same time.

THE SENSES OF "ELEMENT"

An element is the first indivisible constituent of a thing, as letters are of speech.

GREEK

στοιχεῖον λέγεται ἐξ οὗ σύγκειται πρώτου ἐνυπάρχοντος ἀδιαιρέτου τῷ εἴδει εἰς ἕτερον εἶδος, οἷον φωνῆς στοιχεῖα ἐξ ὧν σύγκειται ἡ φωνὴ καὶ εἰς ἃ διαιρεῖται ἔσχατα, ἐκεῖνα δὲ μηκέτ' εἰς ἄλλας φωνὰς ἑτέρας τῷ εἴδει αὐτῶν, ἀλλὰ κἂν διαιρῆται, τὰ μόρια ὁμοειδῆ, οἷον ὕδατος τὸ μόριον ὕδωρ, ἀλλ' οὐ τῆς συλλαβῆς. ὁμοίως δὲ καὶ τὰ τῶν σωμάτων στοιχεῖα λέγουσιν οἱ λέγοντες εἰς ἃ διαιρεῖται τὰ σώματα ἔσχατα, ἐκεῖνα δὲ μηκέτ' εἰς ἄλλα εἴδει διαφέροντα· καὶ εἴτε ἓν εἴτε πλείω τὰ τοιαῦτα, ταῦτα στοιχεῖα λέγουσιν. παραπλησίως δὲ καὶ τὰ τῶν διαγραμμάτων στοιχεῖα λέγεται, καὶ ὅλως τὰ τῶν ἀποδείξεων· αἱ γὰρ πρῶται ἀποδείξεις καὶ ἐν πλείοσιν ἀποδείξεσιν ἐνυπάρχουσαι, [1014b] αὗται στοιχεῖα τῶν ἀποδείξεων λέγονται· εἰσὶ δὲ τοιοῦτοι συλλογισμοὶ οἱ πρῶτοι ἐκ τῶν τριῶν δι' ἑνὸς μέσου.

ENGLISH

"Element" means the first constituent, indivisible in kind into another kind, out of which a thing is composed. For instance, the elements of spoken sound are those out of which the sound is composed and into which it is ultimately divided, while they themselves are no longer divided into other sounds different in kind from them; even if they are divided, the parts are of the same kind, as a part of water is water—whereas a part of a syllable is not a syllable. Similarly, those who speak of the elements of bodies mean the things into which bodies are ultimately divided, while these are no longer divided into other things differing in kind; and whether there is one such thing or more, they call these elements. In much the same way we speak of the elements of geometrical proofs, and in general of demonstrations. For the primary demonstrations, which are present within many demonstrations, [1014b] are called the elements of demonstrations; and such are the

3 Polyclitus was a celebrated sculptor of the fifth century BC.

GREEK	ENGLISH
	primary syllogisms, made up of three terms by means of one middle term.
1014b καὶ μεταφέροντες δὲ στοιχεῖον καλοῦσιν ἐντεῦθεν ὃ ἂν ἓν ὂν καὶ μικρὸν ἐπὶ πολλὰ ᾖ χρήσιμον, διὸ καὶ τὸ μικρὸν καὶ ἁπλοῦν καὶ ἀδιαίρετον στοιχεῖον λέγεται. ὅθεν ἐλήλυθε τὰ μάλιστα καθόλου στοιχεῖα εἶναι, ὅτι ἕκαστον αὐτῶν ἓν ὂν καὶ ἁπλοῦν ἐν πολλοῖς ὑπάρχει ἢ πᾶσιν ἢ ὅτι πλείστοις, καὶ τὸ ἓν καὶ τὴν στιγμὴν ἀρχάς τισι δοκεῖν εἶναι. ἐπεὶ οὖν τὰ καλούμενα γένη καθόλου καὶ ἀδιαίρετα (οὐ γὰρ ἔστι λόγος αὐτῶν), στοιχεῖα τὰ γένη λέγουσί τινες, καὶ μᾶλλον ἢ τὴν διαφορὰν ὅτι καθόλου μᾶλλον τὸ γένος· ᾧ μὲν γὰρ ἡ διαφορὰ ὑπάρχει, καὶ τὸ γένος ἀκολουθεῖ, ᾧ δὲ τὸ γένος, οὐ παντὶ ἡ διαφορά. ἁπάντων δὲ κοινὸν τὸ εἶναι στοιχεῖον ἑκάστου τὸ πρῶτον ἐνυπάρχον ἑκάστῳ.	People also transfer the word from this sense and call an element whatever, being one and small, is useful for many purposes. That is why what is small and simple and indivisible is called an element. Hence the idea has arisen that the most universal things are elements, because each of them, being one and simple, is present in many things—in all, or in as many as possible; and hence some think that the one and the point are principles. Since, then, the so-called genera are universal and indivisible (for there is no account of them), some say that the genera are elements, and more so than the differentia, because the genus is more universal: where the differentia belongs, the genus follows too, but the differentia does not belong to everything the genus belongs to. What is common to all these senses is that the element of each thing is what is first present within it.

THE SENSES OF "NATURE"

Nature is growth, matter, and above all the form of things that move themselves.

GREEK	ENGLISH
φύσις λέγεται ἕνα μὲν τρόπον ἡ τῶν φυομένων γένεσις, οἷον εἴ τις ἐπεκτείνας λέγοι τὸ υ, ἕνα δὲ ἐξ οὗ φύεται πρώτου τὸ φυόμενον ἐνυπάρχοντος· ἔτι ὅθεν ἡ κίνησις ἡ πρώτη ἐν ἑκάστῳ τῶν φύσει ὄντων ἐν αὐτῷ ἢ αὐτὸ ὑπάρχει· φύεσθαι δὲ λέγεται ὅσα αὔξησιν ἔχει δι' ἑτέρου τῷ ἅπτεσθαι καὶ συμπεφυκέναι ἢ προσπεφυκέναι ὥσπερ τὰ ἔμβρυα· διαφέρει δὲ σύμφυσις ἁφῆς, ἔνθα μὲν γὰρ οὐδὲν παρὰ τὴν ἁφὴν ἕτερον ἀνάγκη εἶναι, ἐν δὲ τοῖς συμπεφυκόσιν ἔστι τι ἓν τὸ αὐτὸ ἐν ἀμφοῖν ὃ ποιεῖ ἀντὶ τοῦ ἅπτεσθαι συμπεφυκέναι καὶ εἶναι ἓν κατὰ τὸ συνεχὲς καὶ ποσόν, ἀλλὰ μὴ κατὰ τὸ ποιόν.	"Nature" means, in one way, the coming to be of growing things—as if one were to pronounce the u long. In another, it means that first constituent out of which a growing thing grows. Further, it means that from which the first motion in each natural thing is present in it as such. Things are said to grow when they gain increase through something else by touching it and by having grown together with it or grown onto it, as embryos do. Growing together differs from touching: in touching there need be nothing besides the contact, while in things that have grown together there is some one and the same thing in both which makes them grow together instead of merely touching, and be one in continuity and quantity, though not in quality.[4]
ἔτι δὲ φύσις λέγεται ἐξ οὗ πρώτου ἢ ἔστιν ἢ γίγνεταί τι τῶν φύσει ὄντων, ἀρρυθμίστου ὄντος καὶ ἀμεταβλήτου ἐκ τῆς δυνάμεως τῆς αὐτοῦ, οἷον ἀνδριάντος καὶ τῶν σκευῶν τῶν χαλκῶν ὁ χαλκὸς ἡ φύσις λέγεται, τῶν δὲ ξυλίνων ξύλον· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων· ἐκ τούτων	Further, "nature" means that first thing, unshaped and incapable of changing by its own capacity, out of which some natural thing either is or comes to be—as bronze is called the nature of a statue and of bronze vessels, and wood of wooden ones; and

4 The Greek for "nature", physis, is related to the verb "to grow"; pronounced with a long u, it would sound like a word for "growing".

GREEK	ENGLISH
γάρ ἐστιν ἕκαστον διασωζομένης τῆς πρώτης ὕλης· τοῦτον γὰρ τὸν τρόπον καὶ τῶν φύσει ὄντων τὰ στοιχεῖά φασιν εἶναι φύσιν, οἱ μὲν πῦρ οἱ δὲ γῆν οἱ δ' ἀέρα οἱ δ' ὕδωρ οἱ δ' ἄλλο τι τοιοῦτον λέγοντες, οἱ δ' ἔνια τούτων οἱ δὲ πάντα ταῦτα.	likewise with other things. For each thing is made of these, with the first matter persisting. It is in this way that people also say that the elements of natural things are their nature—some saying fire, some earth, some air, some water, some something else of the kind, some several of these, and some all of them.
ἔτι δ' ἄλλον τρόπον λέγεται ἡ φύσις ἡ τῶν φύσει ὄντων οὐσία, οἷον οἱ λέγοντες τὴν φύσιν εἶναι τὴν πρώτην σύνθεσιν, 1015a ἢ ὥσπερ Ἐμπεδοκλῆς λέγει ὅτι φύσις οὐδενὸς ἔστιν ἐόντων, ἀλλὰ μόνον μῖξίς τε διάλλαξίς τε μιγέντων ἔστι, φύσις δ' ἐπὶ τοῖς ὀνομάζεται ἀνθρώποισιν. διὸ καὶ ὅσα φύσει ἔστιν ἢ γίγνεται, ἤδη ὑπάρχοντος ἐξ οὗ πέφυκε γίγνεσθαι ἢ εἶναι, οὔπω φαμὲν τὴν φύσιν ἔχειν ἐὰν μὴ ἔχῃ τὸ εἶδος καὶ τὴν μορφήν.	Further, in another way "nature" means the substance of natural things—as with those who say that nature is the primary composition, 1015a or as Empedocles says: "Of none of the things that are is there nature, but only mixing and exchange of what has been mixed there is; and 'nature' is a name humans give to these." That is why, of things that are or come to be by nature, even when that from which they naturally come to be or are is already present, we say that they do not yet have their nature unless they have their form and shape.
1015a φύσει μὲν οὖν τὸ ἐξ ἀμφοτέρων τούτων ἐστίν, οἷον τὰ ζῷα καὶ τὰ μόρια αὐτῶν· φύσις δὲ ἥ τε πρώτη ὕλη (καὶ αὕτη διχῶς, ἢ ἡ πρὸς αὐτὸ πρώτη ἢ ἡ ὅλως πρώτη, οἷον τῶν χαλκῶν ἔργων πρὸς αὐτὰ μὲν πρῶτος ὁ χαλκός, ὅλως δ' ἴσως ὕδωρ, εἰ πάντα τὰ τηκτὰ ὕδωρ) καὶ τὸ εἶδος καὶ ἡ οὐσία· τοῦτο δ' ἐστὶ τὸ τέλος τῆς γενέσεως. μεταφορᾷ δ' ἤδη καὶ ὅλως πᾶσα οὐσία φύσις λέγεται διὰ ταύτην, ὅτι καὶ ἡ φύσις οὐσία τίς ἐστιν. ἐκ δὴ τῶν εἰρημένων ἡ πρώτη φύσις καὶ κυρίως λεγομένη ἐστὶν ἡ οὐσία ἡ τῶν ἐχόντων ἀρχὴν κινήσεως ἐν αὑτοῖς ᾗ αὐτά· ἡ γὰρ ὕλη τῷ ταύτης δεκτικὴ εἶναι λέγεται φύσις, καὶ αἱ γενέσεις καὶ τὸ φύεσθαι τῷ ἀπὸ ταύτης εἶναι κινήσεις.	What is by nature, then, is what is made of both of these—animals, for instance, and their parts. And nature is both the first matter (and this in two senses, either first relative to the thing or first in general: of bronze works, for instance, bronze is first relative to them, but in general perhaps water, if everything that can be melted is water) and the form, that is, the substance; and this is the end of the coming to be. And by an extension of meaning, every substance in general is now called a nature on account of this, since nature too is a kind of substance. From what has been said, then, nature in the primary and proper sense is the substance of things that have a principle of motion in themselves as such. For the matter is called nature because it is able to receive this, and processes of coming to be and of growing are called nature because they are motions proceeding from this.
καὶ ἡ ἀρχὴ τῆς κινήσεως τῶν φύσει ὄντων αὕτη ἐστίν, ἐνυπάρχουσά πως ἢ δυνάμει ἢ ἐντελεχείᾳ.	And this is the principle of motion of natural things, present in them in some way, either potentially or in actuality.[5]

THE SENSES OF "NECESSARY"

The necessary is what is needed, what is forced, and what cannot be otherwise.

GREEK	ENGLISH
ἀναγκαῖον λέγεται οὗ ἄνευ οὐκ ἐνδέχεται ζῆν ὡς συναιτίου (οἷον τὸ ἀναπνεῖν καὶ ἡ τροφὴ τῷ ζῴῳ ἀναγκαῖον, ἀδύνατον γὰρ ἄνευ τούτων εἶναι), καὶ ὧν ἄνευ τὸ ἀγαθὸν μὴ ἐνδέχεται ἢ εἶναι ἢ γενέσθαι, ἢ τὸ κακὸν ἀποβαλεῖν ἢ στερηθῆναι (οἷον τὸ πιεῖν τὸ φάρμακον ἀναγκαῖον ἵνα μὴ κάμνῃ, καὶ τὸ πλεῦσαι εἰς Αἴγιναν ἵνα ἀπολάβῃ τὰ χρήματα).	"Necessary" means that without which, as a contributing cause, it is not possible to live (breathing and food, for instance, are necessary for an animal, since it cannot exist without them); and the conditions without which the good cannot be or come to be, or the bad cannot be got rid of or kept away (drinking the medicine, for instance, is necessary in order not to be ill, and sailing to Aegina is necessary in order to recover one's money).
ἔτι τὸ βίαιον καὶ ἡ βία· τοῦτο δ' ἐστὶ τὸ παρὰ τὴν ὁρμὴν καὶ τὴν προαίρεσιν ἐμποδίζον καὶ κωλυτικόν, τὸ γὰρ βίαιον ἀναγκαῖον λέγεται, διὸ καὶ λυπηρόν (ὥσπερ καὶ Εὔηνός φησι πᾶν γὰρ ἀναγκαῖον πρᾶγμ' ἀνιαρὸν ἔφυ), καὶ ἡ βία ἀνάγκη τις (ὥσπερ καὶ Σοφοκλῆς λέγει ἀλλ' ἡ βία με ταῦτ' ἀναγκάζει ποιεῖν), καὶ δοκεῖ ἡ ἀνάγκη ἀμετάπειστόν τι εἶναι, ὀρθῶς· ἐναντίον γὰρ τῇ κατὰ τὴν προαίρεσιν κινήσει καὶ κατὰ τὸν λογισμόν.	Further, it means what is forced, and force. This is what hinders and impedes, contrary to impulse and decision. For what is forced is called necessary—which is also why it is painful, as Evenus says: "For every necessary thing is by nature grievous." And force is a kind of necessity, as Sophocles too says: "But force compels me to do these things." And necessity is thought to be something that cannot be persuaded—rightly, for it is contrary to motion that follows decision and reasoning.[6]
ἔτι τὸ μὴ ἐνδεχόμενον ἄλλως ἔχειν ἀναγκαῖόν φαμεν οὕτως ἔχειν· καὶ κατὰ τοῦτο τὸ ἀναγκαῖον καὶ τἆλλα λέγεταί πως ἅπαντα ἀναγκαῖα· τό τε γὰρ βίαιον ἀναγκαῖον λέγεται ἢ ποιεῖν ἢ πάσχειν τότε, 1015b ὅταν μὴ ἐνδέχηται κατὰ τὴν ὁρμὴν διὰ τὸ βιαζόμενον, ὡς ταύτην ἀνάγκην οὖσαν δι' ἣν μὴ ἐνδέχεται ἄλλως, καὶ ἐπὶ τῶν συναιτίων τοῦ ζῆν καὶ τοῦ ἀγαθοῦ ὡσαύτως· ὅταν γὰρ μὴ ἐνδέχηται ἔνθα μὲν τὸ ἀγαθὸν ἔνθα δὲ τὸ ζῆν καὶ τὸ εἶναι ἄνευ τινῶν, ταῦτα ἀναγκαῖα καὶ ἡ αἰτία ἀνάγκη τίς ἐστιν αὕτη. ἔτι ἡ ἀπόδειξις τῶν ἀναγκαίων, ὅτι οὐκ ἐνδέχεται ἄλλως ἔχειν, εἰ ἀποδέδεικται ἁπλῶς· τούτου δ' αἴτια τὰ πρῶτα, εἰ ἀδύνατον ἄλλως ἔχειν ἐξ ὧν ὁ συλλογισμός.	Further, when something cannot be otherwise, we say that it is necessary for it to be so. And it is in virtue of this sense of "necessary" that all the others are, in a way, called necessary. For what is forced is said to be necessary—to do or to undergo something— 1015b when, because of what is forcing it, it cannot act on its impulse; the assumption being that this is necessity, that because of which a thing cannot be otherwise. And the same goes for the contributing causes of living and of the good: when it is not possible without certain things, in the one case for the good, in the other for living and being, then these things are necessary, and this cause is a kind of necessity. Further, demonstration is among the necessary things, because what has been demonstrated without qualification cannot be otherwise. And the cause of this is the first premises, if the things from which the syllogism proceeds cannot be otherwise.
1015b τῶν μὲν δὴ ἕτερον αἴτιον τοῦ ἀναγκαῖα εἶναι, τῶν δὲ οὐδέν, ἀλλὰ διὰ ταῦτα ἕτερά ἐστιν ἐξ ἀνάγκης. ὥστε τὸ πρῶτον καὶ κυρίως ἀναγκαῖον τὸ ἁπλοῦν ἐστίν· τοῦτο γὰρ	For some things, then, something else is the cause of their being necessary; for others nothing is, but it is because of them that other things are neces-

5 "Actuality" here renders *entelecheia*, literally "being-at-completion."
6 Evenus of Paros was a fifth-century BC poet and teacher; the line of Sophocles is from his *Electra*.

GREEK

οὐκ ἐνδέχεται πλεοναχῶς ἔχειν, ὥστ' οὐδὲ ἄλλως καὶ ἄλλως· ἤδη γὰρ πλεοναχῶς ἂν ἔχοι. εἰ ἄρα ἔστιν ἄττα ἀΐδια καὶ ἀκίνητα, οὐδὲν ἐκείνοις ἐστὶ βίαιον οὐδὲ παρὰ φύσιν.

ENGLISH

sarily. So what is necessary in the primary and proper sense is the simple; for this cannot be in more ways than one, and so it cannot be now one way and now another—for then it would already be in more ways than one. If, then, there are some things that are eternal and unchanging, nothing forced or contrary to nature belongs to them.

THE SENSES OF "ONE"

Things are one accidentally, by continuity, by kind, by genus, or by account.

GREEK

ἓν λέγεται τὸ μὲν κατὰ συμβεβηκὸς τὸ δὲ καθ' αὑτό, κατὰ συμβεβηκὸς μὲν οἷον Κορίσκος καὶ τὸ μουσικόν, καὶ Κορίσκος μουσικός (ταὐτὸ γὰρ εἰπεῖν Κορίσκος καὶ τὸ μουσικόν, καὶ Κορίσκος μουσικός), καὶ τὸ μουσικὸν καὶ τὸ δίκαιον, καὶ μουσικὸς ⟨Κορίσκος⟩ καὶ δίκαιος Κορίσκος· πάντα γὰρ ταῦτα ἓν λέγεται κατὰ συμβεβηκός, τὸ μὲν δίκαιον καὶ τὸ μουσικὸν ὅτι μιᾷ οὐσίᾳ συμβέβηκεν, τὸ δὲ μουσικὸν καὶ Κορίσκος ὅτι θάτερον θατέρῳ συμβέβηκεν· ὁμοίως δὲ τρόπον τινὰ καὶ ὁ μουσικὸς Κορίσκος τῷ Κορίσκῳ ἓν ὅτι θάτερον τῶν μορίων θατέρῳ συμβέβηκε τῶν ἐν τῷ λόγῳ, οἷον τὸ μουσικὸν τῷ Κορίσκῳ· καὶ ὁ μουσικὸς Κορίσκος δικαίῳ Κορίσκῳ ὅτι ἑκατέρου μέρος τῷ αὐτῷ ἑνὶ συμβέβηκεν ἕν.

ENGLISH

"One" is said in one way accidentally, in another in its own right. Accidentally—for instance, Coriscus and the musical, and musical Coriscus (for to say "Coriscus and the musical" is the same as to say "musical Coriscus"), and the musical and the just, and musical Coriscus and just Coriscus. For all these are called one accidentally: the just and the musical because they are accidental to one substance, the musical and Coriscus because one is accidental to the other. Similarly, in a way, musical Coriscus is one with Coriscus because one of the parts in the phrase is accidental to the other—the musical to Coriscus. And musical Coriscus is one with just Coriscus because a part of each is accidental to the same one thing.[7]

GREEK

ὡσαύτως δὲ κἂν ἐπὶ γένους κἂν ἐπὶ τῶν καθόλου τινὸς ὀνομάτων λέγηται τὸ συμβεβηκός, οἷον ὅτι ἄνθρωπος τὸ αὐτὸ καὶ μουσικὸς ἄνθρωπος· ἢ γὰρ ὅτι τῷ ἀνθρώπῳ μιᾷ οὔσῃ οὐσίᾳ συμβέβηκε τὸ μουσικόν, ἢ ὅτι ἄμφω τῶν καθ' ἕκαστόν τινι συμβέβηκεν, οἷον Κορίσκῳ. πλὴν οὐ τὸν αὐτὸν τρόπον ἄμφω ὑπάρχει, ἀλλὰ τὸ μὲν ἴσως ὡς γένος καὶ ἐν τῇ οὐσίᾳ τὸ δὲ ὡς ἕξις ἢ πάθος τῆς οὐσίας.—ὅσα μὲν οὖν κατὰ συμβεβηκὸς λέγεται ἕν, τοῦτον τὸν τρόπον λέγεται· τῶν δὲ καθ' ἑαυτὰ ἓν λεγομένων τὰ μὲν λέγεται τῷ συνεχῆ εἶναι, οἷον φάκελος δεσμῷ καὶ ξύλα κόλλῃ· [1016a] καὶ γραμμή, κἂν κεκαμμένη ᾖ, συνεχὴς δέ, μία λέγεται, ὥσπερ καὶ τῶν μερῶν ἕκαστον, οἷον σκέλος καὶ βραχίων. αὐτῶν δὲ τούτων μᾶλλον ἓν τὰ φύσει συνεχῆ ἢ τέχνῃ.

ENGLISH

It is the same too if the accident is said of a genus or of any universal term—for instance, that man is the same as musical man. This is either because the musical is accidental to man, which is one substance, or because both are accidental to some particular, such as Coriscus. But they do not both belong in the same way: one belongs, presumably, as genus and within the substance, the other as a state or affection of the substance. —Things that are called one accidentally, then, are called so in this way. Of things called one in their own right, some are called so because they are continuous—as a bundle is made one by a binding, and pieces of wood by glue; [1016a] and a line, even if it is bent, provided it is continuous, is called one, as is each of the body's parts, such as a leg or an arm. And among these, things continuous by nature are more one than things continuous by craft.

GREEK

1016a συνεχὲς δὲ λέγεται οὗ κίνησις μία καθ' αὑτὸ καὶ μὴ οἷόν τε ἄλλως· μία δ' οὗ ἀδιαίρετος, ἀδιαίρετος δὲ κατὰ

ENGLISH

A thing is called continuous if its motion is one in its own right and cannot be otherwise; and motion

7 Coriscus of Scepsis, a member of Plato's circle and later an associate of Aristotle, is his stock example of an individual.

GREEK

χρόνον. καθ' αὑτὰ δὲ συνεχῆ ὅσα μὴ ἁφῇ ἕν· εἰ γὰρ θείης ἁπτόμενα ἀλλήλων ξύλα, οὐ φήσεις ταῦτα εἶναι ἓν οὔτε ξύλον οὔτε σῶμα οὔτ' ἄλλο συνεχὲς οὐδέν. τά τε δὴ ὅλως συνεχῆ ἓν λέγεται κἂν ἔχῃ κάμψιν, καὶ ἔτι μᾶλλον τὰ μὴ ἔχοντα κάμψιν, οἷον κνήμη ἢ μηρὸς σκέλους, ὅτι ἐνδέχεται μὴ μίαν εἶναι τὴν κίνησιν τοῦ σκέλους.

καὶ ἡ εὐθεῖα τῆς κεκαμμένης μᾶλλον ἕν· τὴν δὲ κεκαμμένην καὶ ἔχουσαν γωνίαν καὶ μίαν καὶ οὐ μίαν λέγομεν, ὅτι ἐνδέχεται καὶ μὴ ἅμα τὴν κίνησιν αὐτῆς εἶναι καὶ ἅμα· τῆς δ' εὐθείας ἀεὶ ἅμα, καὶ οὐδὲν μόριον ἔχον μέγεθος τὸ μὲν ἠρεμεῖ τὸ δὲ κινεῖται, ὥσπερ τῆς κεκαμμένης. ἔτι ἄλλον τρόπον ἓν λέγεται τῷ τὸ ὑποκείμενον τῷ εἴδει εἶναι ἀδιάφορον· ἀδιάφορον δ' ὧν ἀδιαίρετον τὸ εἶδος κατὰ τὴν αἴσθησιν· τὸ δ' ὑποκείμενον ἢ τὸ πρῶτον ἢ τὸ τελευταῖον πρὸς τὸ τέλος· καὶ γὰρ οἶνος εἷς λέγεται καὶ ὕδωρ ἕν, ᾗ ἀδιαίρετον κατὰ τὸ εἶδος, καὶ οἱ χυμοὶ πάντες λέγονται ἕν (οἷον ἔλαιον οἶνος) καὶ τὰ τηκτά, ὅτι πάντων τὸ ἔσχατον ὑποκείμενον τὸ αὐτό· ὕδωρ γὰρ ἢ ἀὴρ πάντα ταῦτα.

λέγεται δ' ἓν καὶ ὧν τὸ γένος ἓν διαφέρον ταῖς ἀντικειμέναις διαφοραῖς—καὶ ταῦτα λέγεται πάντα ἓν ὅτι τὸ γένος ἓν τὸ ὑποκείμενον ταῖς διαφοραῖς (οἷον ἵππος ἄνθρωπος κύων ἕν τι ὅτι πάντα ζῷα), καὶ τρόπον δὴ παραπλήσιον ὥσπερ ἡ ὕλη μία. ταῦτα δὲ ὁτὲ μὲν οὕτως ἓν λέγεται, ὁτὲ δὲ τὸ ἄνω γένος ταὐτὸν λέγεται —ἂν ᾖ τελευταῖα τοῦ γένους εἴδη—τὸ ἀνωτέρω τούτων, οἷον τὸ ἰσοσκελὲς καὶ τὸ ἰσόπλευρον ταὐτὸ καὶ ἓν σχῆμα ὅτι ἄμφω τρίγωνα· τρίγωνα δ' οὐ ταὐτά. ἔτι δὲ ἓν λέγεται ὅσων ὁ λόγος ὁ τὸ τί ἦν εἶναι λέγων ἀδιαίρετος πρὸς ἄλλον τὸν δηλοῦντα [τί ἦν εἶναι] τὸ πρᾶγμα (αὐτὸς γὰρ καθ' αὑτὸν πᾶς λόγος διαιρετός).

οὕτω γὰρ καὶ τὸ ηὐξημένον καὶ φθῖνον ἕν ἐστιν, ὅτι ὁ λόγος εἷς, ὥσπερ ἐπὶ τῶν ἐπιπέδων ὁ τοῦ εἴδους. [1016b] ὅλως δὲ ὧν ἡ νόησις ἀδιαίρετος ἡ νοοῦσα τὸ τί ἦν εἶναι,

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is one when it is indivisible—indivisible, that is, in time. Things are continuous in their own right when they are one not merely by contact; for if you set pieces of wood touching one another, you will not say that they are one piece of wood or one body or any other one continuous thing. Things that are continuous at all, then, are called one even if they have a bend, and those without a bend still more so—as the shin or the thigh is more one than the leg, since the motion of the leg need not be one.

And the straight line is more one than the bent line. A line that is bent and has an angle we call both one and not one, because its motion can be either not simultaneous or simultaneous; but the motion of the straight line is always simultaneous, and no part of it that has magnitude is at rest while another moves, as with the bent line. Further, in another way things are called one because their underlying subject does not differ in form; and things do not differ in form when their form is indivisible to perception. The underlying subject is either the first or the last, reckoning back from the end. For wine is called one and water one, insofar as each is indivisible in form; and all liquids are called one (oil and wine, for instance), and so are all things that can be melted, because the ultimate underlying subject of all of them is the same: all these are water or air.

Things are also called one whose genus is one, though distinguished by opposed differentiae. These are all called one because the genus that underlies the differentiae is one (horse, man and dog, for instance, are one thing because they are all animals), in much the same way as the matter is one. Sometimes these are called one in this way; but sometimes it is their higher genus that is said to be the same—if they are the lowest species of their genus—namely the genus above these. The isosceles and the equilateral triangle, for instance, are one and the same figure because both are triangles; but they are not the same triangles. Further, things are called one when the account stating the essence of one is indivisible from another account that shows the essence of the other (for every account, taken by itself, is divisible).

For this is how what has grown or shrunk is one: because its account is one—just as with plane figures the account of the form is one. [1016b] In gener-

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καὶ μὴ δύναται χωρίσαι μήτε χρόνῳ μήτε τόπῳ μήτε λόγῳ, μάλιστα ταῦτα ἕν, καὶ τούτων ὅσα οὐσίαι· καθόλου γὰρ ὅσα μὴ ἔχει διαίρεσιν, ᾗ μὴ ἔχει, ταύτῃ ἓν λέγεται, οἷον εἰ ᾗ ἄνθρωπος μὴ ἔχει διαίρεσιν, εἷς ἄνθρωπος, εἰ δ' ᾗ ζῷον, ἓν ζῷον, εἰ δὲ ᾗ μέγεθος, ἓν μέγεθος.

1016b τὰ μὲν οὖν πλεῖστα ἓν λέγεται τῷ ἕτερόν τι ἢ ποιεῖν ἢ ἔχειν ἢ πάσχειν ἢ πρός τι εἶναι ἕν, τὰ δὲ πρώτως λεγόμενα ἓν ὧν ἡ οὐσία μία, μία δὲ ἢ συνεχείᾳ ἢ εἴδει ἢ λόγῳ· καὶ γὰρ ἀριθμοῦμεν ὡς πλείω ἢ τὰ μὴ συνεχῆ ἢ ὧν μὴ ἓν τὸ εἶδος ἢ ὧν ὁ λόγος μὴ εἷς.

ἔτι δ' ἔστι μὲν ὡς ὁτιοῦν ἕν φαμεν εἶναι ἂν ᾖ ποσὸν καὶ συνεχές, ἔστι δ' ὡς οὔ, ἂν μή τι ὅλον ᾖ, τοῦτο δὲ ἂν μὴ τὸ εἶδος ἔχῃ ἕν· οἷον οὐκ ἂν φαῖμεν ὁμοίως ἓν ἰδόντες ὁπωσοῦν τὰ μέρη συγκείμενα τοῦ ὑποδήματος, ἐὰν μὴ διὰ τὴν συνέχειαν, ἀλλ' ἐὰν οὕτως ὥστε ὑπόδημα εἶναι καὶ εἶδός τι ἔχειν ἤδη ἕν· διὸ καὶ ἡ τοῦ κύκλου μάλιστα μία τῶν γραμμῶν, ὅτι ὅλη καὶ τέλειός ἐστιν.—τὸ δὲ ἑνὶ εἶναι ἀρχῇ τινί ἐστιν ἀριθμοῦ εἶναι· τὸ γὰρ πρῶτον μέτρον ἀρχή, ᾧ γὰρ πρώτῳ γνωρίζομεν, τοῦτο πρῶτον μέτρον ἑκάστου γένους· ἀρχὴ οὖν τοῦ γνωστοῦ περὶ ἕκαστον τὸ ἕν. οὐ ταὐτὸ δὲ ἐν πᾶσι τοῖς γένεσι τὸ ἕν.

ἔνθα μὲν γὰρ δίεσις ἔνθα δὲ τὸ φωνῆεν ἢ ἄφωνον· βάρους δὲ ἕτερον καὶ κινήσεως ἄλλο. πανταχοῦ δὲ τὸ ἓν ἢ τῷ ποσῷ ἢ τῷ εἴδει ἀδιαίρετον. τὸ μὲν οὖν κατὰ τὸ ποσὸν ἀδιαίρετον, τὸ μὲν πάντῃ καὶ ἄθετον λέγεται μονάς, τὸ δὲ πάντῃ καὶ θέσιν ἔχον στιγμή, τὸ δὲ μοναχῇ γραμμή, τὸ δὲ διχῇ ἐπίπεδον, τὸ δὲ πάντῃ καὶ τριχῇ διαιρετὸν κατὰ τὸ ποσὸν σῶμα· καὶ ἀντιστρέψαντι δὴ τὸ μὲν διχῇ διαιρετὸν ἐπίπεδον, τὸ δὲ μοναχῇ γραμμή, τὸ δὲ μηδαμῇ διαιρετὸν κατὰ τὸ ποσὸν στιγμὴ καὶ μονάς, ἡ μὲν ἄθετος μονὰς ἡ δὲ θετὸς στιγμή.

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al, things are most of all one when the thinking that grasps their essence is indivisible and cannot separate them either in time or in place or in account; and among these, most of all those that are substances. For in general, whatever admits no division is called one insofar as it admits none: if something admits no division as man, it is one man; if as animal, one animal; if as magnitude, one magnitude.

Most things, then, are called one because some other thing that is one is what they do, or have, or undergo, or are related to; but the things called one in the primary sense are those whose substance is one—one either by continuity or in form or in account. For we count as more than one either things that are not continuous, or things whose form is not one, or things whose account is not one.

Further, in one way we say that anything at all is one if it is a quantity and continuous; but in another way we do not, unless it is some whole, that is, unless it has one form. We would not, for instance, equally call it one if we saw the parts of a shoe put together anyhow (except by reason of their continuity), but only if they are put together so as to be a shoe and to have, by then, some one form. That is why the line of the circle is the most one of all lines, because it is whole and complete. —To be one is to be a kind of principle of number; for the first measure is a principle. For that by which we first come to know each genus is the first measure of that genus; the one, then, is the principle of what is knowable about each thing. But the one is not the same in all genera.

GREEK	ENGLISH
	In one genus it is the diesis, in another the vowel or consonant; in weight it is one thing, and in motion another. But everywhere the one is indivisible either in quantity or in form. Of what is indivisible in quantity, then: what is indivisible in every direction and has no position is called a unit; what is indivisible in every direction and has position, a point; what is divisible in one direction, a line; in two, a plane; and what is divisible in quantity in every direction, that is, in three, a body. And, reversing the order, what is divisible in two directions is a plane, in one a line, and what is in no way divisible in quantity is a point or a unit—the one without position a unit, the one with position a point.[8]
ἔτι δὲ τὰ μὲν κατ' ἀριθμόν ἐστιν ἕν, τὰ δὲ κατ' εἶδος, τὰ δὲ κατὰ γένος, τὰ δὲ κατ' ἀναλογίαν, ἀριθμῷ μὲν ὧν ἡ ὕλη μία, εἴδει δ' ὧν ὁ λόγος εἷς, γένει δ' ὧν τὸ αὐτὸ σχῆμα τῆς κατηγορίας, κατ' ἀναλογίαν δὲ ὅσα ἔχει ὡς ἄλλο πρὸς ἄλλο. ἀεὶ δὲ τὰ ὕστερα τοῖς ἔμπροσθεν ἀκολουθεῖ, οἷον ὅσα ἀριθμῷ καὶ εἴδει ἕν, ὅσα δ' εἴδει οὐ πάντα ἀριθμῷ· 1017a ἀλλὰ γένει πάντα ἓν ὅσαπερ καὶ εἴδει, ὅσα δὲ γένει οὐ πάντα εἴδει ἀλλ' ἀναλογίᾳ· ὅσα δὲ ἀνολογίᾳ οὐ πάντα γένει.	Further, some things are one in number, some in species, some in genus, some by analogy: in number, those whose matter is one; in species, those whose account is one; in genus, those that fall under the same figure of predication; by analogy, those related as one thing is to another. The later kinds always follow the earlier: things one in number are also one in species, but not all things one in species are one in number; 1017a but all things one in species are one in genus, while not all things one in genus are one in species, though they are one by analogy; and not all things one by analogy are one in genus.
1017a φανερὸν δὲ καὶ ὅτι τὰ πολλὰ ἀντικειμένως λεχθήσεται τῷ ἑνί· τὰ μὲν γὰρ τῷ μὴ συνεχῆ εἶναι, τὰ δὲ τῷ διαιρετὴν ἔχειν τὴν ὕλην κατὰ τὸ εἶδος, ἢ τὴν πρώτην ἢ τὴν τελευταίαν, τὰ δὲ τῷ τοὺς λόγους πλείους τοὺς τί ἦν εἶναι λέγοντας.	It is evident too that "many" will be said in ways opposed to "one". Some things are many because they are not continuous; others because their matter—either the first or the last—is divisible in form; others because the accounts stating their essence are more than one.

THE SENSES OF "BEING"

Being is said accidentally, by the categories, as truth, and as potential or actual.

GREEK	ENGLISH
τὸ ὂν λέγεται τὸ μὲν κατὰ συμβεβηκὸς τὸ δὲ καθ' αὑτό, κατὰ συμβεβηκὸς μέν, οἷον τὸν δίκαιον μουσικὸν εἶναί φαμεν καὶ τὸν ἄνθρωπον μουσικὸν καὶ τὸν μουσικὸν ἄνθρωπον, παραπλησίως λέγοντες ὡσπερεὶ τὸν μουσικὸν οἰκοδομεῖν ὅτι συμβέβηκε τῷ οἰκοδόμῳ μουσικῷ εἶναι ἢ τῷ μουσικῷ οἰκοδόμῳ (τὸ γὰρ τόδε εἶναι τόδε σημαίνει τὸ συμβεβηκέναι τῷδε τόδε),—οὕτω δὲ καὶ ἐπὶ τῶν εἰρημένων· τὸν γὰρ ἄνθρωπον ὅταν μουσικὸν λέγωμεν	"Being" is said in one sense accidentally, in another in its own right. Accidentally—for instance, we say that the just person is musical, and that the man is musical, and that the musical one is a man, speaking much as when we say that the musician builds, because it is accidental to the builder to be musical or to the musician to be a builder (for "this is that" signifies that this is accidental to

8 In Greek music theory the diesis, roughly a quarter-tone, was the smallest interval.

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καὶ τὸν μουσικὸν ἄνθρωπον, ἢ τὸν λευκὸν μουσικὸν ἢ τοῦτον λευκόν, τὸ μὲν ὅτι ἄμφω τῷ αὐτῷ συμβεβήκασι, τὸ δ' ὅτι τῷ ὄντι συμβέβηκε, τὸ δὲ μουσικὸν ἄνθρωπον ὅτι τούτῳ τὸ μουσικὸν συμβέβηκεν (οὕτω δὲ λέγεται καὶ τὸ μὴ λευκὸν εἶναι, ὅτι ᾧ συμβέβηκεν, ἐκεῖνο ἔστιν)·—τὰ μὲν οὖν κατὰ συμβεβηκὸς εἶναι λεγόμενα οὕτω λέγεται ἢ διότι τῷ αὐτῷ ὄντι ἄμφω ὑπάρχει, ἢ ὅτι ὄντι ἐκείνῳ ὑπάρχει, ἢ ὅτι αὐτὸ ἔστιν ᾧ ὑπάρχει οὗ αὐτὸ κατηγορεῖται· καθ' αὑτὰ δὲ εἶναι λέγεται ὅσαπερ σημαίνει τὰ σχήματα τῆς κατηγορίας· ὁσαχῶς γὰρ λέγεται, τοσαυταχῶς τὸ εἶναι σημαίνει.

ENGLISH

that). So too with the cases just mentioned. When we say that the man is musical and that the musical one is a man, or that the pale one is musical or that this one is pale: the last pair because both are accidental to the same thing; "the man is musical" because being musical is accidental to something that is; and "the musical one is a man" because being musical is accidental to this man. (In this way even the not-pale is said to be, because the thing to which it is accidental is.) Things said to be accidentally, then, are said so either because both belong to the same thing, which is; or because the attribute belongs to something that is; or because the very thing is, to which there belongs that of which it is itself predicated. Things are said to be in their own right in as many ways as are signified by the figures of predication; for "to be" has as many meanings as there are ways in which these are said.

ἐπεὶ οὖν τῶν κατηγορουμένων τὰ μὲν τί ἐστι σημαίνει, τὰ δὲ ποιόν, τὰ δὲ ποσόν, τὰ δὲ πρός τι, τὰ δὲ ποιεῖν ἢ πάσχειν, τὰ δὲ πού, τὰ δὲ ποτέ, ἑκάστῳ τούτων τὸ εἶναι ταὐτὸ σημαίνει· οὐθὲν γὰρ διαφέρει τὸ ἄνθρωπος ὑγιαίνων ἐστὶν ἢ τὸ ἄνθρωπος ὑγιαίνει, οὐδὲ τὸ ἄνθρωπος βαδίζων ἐστὶν ἢ τέμνων τοῦ ἄνθρωπος βαδίζει ἢ τέμνει, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. ἔτι τὸ εἶναι σημαίνει καὶ τὸ ἔστιν ὅτι ἀληθές, τὸ δὲ μὴ εἶναι ὅτι οὐκ ἀληθὲς ἀλλὰ ψεῦδος, ὁμοίως ἐπὶ καταφάσεως καὶ ἀποφάσεως, οἷον ὅτι ἔστι Σωκράτης μουσικός, ὅτι ἀληθὲς τοῦτο, ἢ ὅτι ἔστι Σωκράτης οὐ λευκός, ὅτι ἀληθές· τὸ δ' οὐκ ἔστιν ἡ διάμετρος σύμμετρος, ὅτι ψεῦδος.

Since, then, some predicates signify what a thing is, others its quality, others quantity, others relation, others acting or being acted on, others place, others time, "to be" signifies the same as each of these. For there is no difference between "a man is keeping well" and "a man keeps well", nor between "a man is walking" or "is cutting" and "a man walks" or "cuts"; and likewise with the others. Further, "to be" and "is" signify that something is true, and "not to be" that it is not true but false—alike with affirmation and denial. For instance, "Socrates is musical" signifies that this is true, and "Socrates is not-pale" that this is true; while "the diagonal is not commensurate" signifies that it is false that it is.

1017b ἔτι τὸ εἶναι σημαίνει καὶ τὸ ὂν τὸ μὲν δυνάμει ῥητὸν τὸ δ' ἐντελεχείᾳ τῶν εἰρημένων τούτων· ὁρῶν τε γὰρ εἶναί φαμεν καὶ τὸ δυνάμει ὁρῶν καὶ τὸ ἐντελεχείᾳ, καὶ [τὸ] ἐπίστασθαι ὡσαύτως καὶ τὸ δυνάμενον χρῆσθαι τῇ ἐπιστήμῃ καὶ τὸ χρώμενον, καὶ ἠρεμοῦν καὶ ᾧ ἤδη ὑπάρχει ἠρεμία καὶ τὸ δυνάμενον ἠρεμεῖν. ὁμοίως δὲ καὶ ἐπὶ τῶν οὐσιῶν· καὶ γὰρ Ἑρμῆν ἐν τῷ λίθῳ φαμὲν εἶναι, καὶ τὸ ἥμισυ τῆς γραμμῆς, καὶ σῖτον τὸν μήπω ἀδρόν. πότε δὲ δυνατὸν καὶ πότε οὔπω, ἐν ἄλλοις διοριστέον.

Further, "to be" and "being" signify, in the cases mentioned, that one thing is said to be potentially and another in actuality. For we say that something is seeing both if it sees potentially and if it sees in actuality; and likewise that something knows both if it is able to use its knowledge and if it is using it; and that something is at rest both if rest already belongs to it and if it is able to be at rest. And likewise with substances: we say that Hermes is in the stone, and the half of the line is in the line, and we call grain what is not yet ripe. When something is potentially, and when it is not yet, must be determined elsewhere.[9]

9 That is, the statue of Hermes that could be carved from the block.

THE SENSES OF "SUBSTANCE"

Substance is the ultimate subject, and the separable form of each thing.

GREEK	ENGLISH
οὐσία λέγεται τά τε ἁπλᾶ σώματα, οἷον γῆ καὶ πῦρ καὶ ὕδωρ καὶ ὅσα τοιαῦτα, καὶ ὅλως σώματα καὶ τὰ ἐκ τούτων συνεστῶτα ζῷά τε καὶ δαιμόνια καὶ τὰ μόρια τούτων· ἅπαντα δὲ ταῦτα λέγεται οὐσία ὅτι οὐ καθ' ὑποκειμένου λέγεται ἀλλὰ κατὰ τούτων τὰ ἄλλα. ἄλλον δὲ τρόπον ὃ ἂν ᾖ αἴτιον τοῦ εἶναι, ἐνυπάρχον ἐν τοῖς τοιούτοις ὅσα μὴ λέγεται καθ' ὑποκειμένου, οἷον ἡ ψυχὴ τῷ ζῴῳ.	"Substance" means the simple bodies—earth, fire, water and the like—and in general bodies and the things composed of them, both animals and divine beings, and their parts. All these are called substance because they are not said of an underlying subject, but other things are said of them. In another way it means whatever, being present within such things as are not said of an underlying subject, is the cause of their being—as the soul is of the animal.
ἔτι ὅσα μόρια ἐνυπάρχοντά ἐστιν ἐν τοῖς τοιούτοις ὁρίζοντά τε καὶ τόδε τι σημαίνοντα, ὧν ἀναιρουμένων ἀναιρεῖται τὸ ὅλον, οἷον ἐπιπέδου σῶμα, ὥς φασί τινες, καὶ ἐπίπεδον γραμμῆς· καὶ ὅλως ὁ ἀριθμὸς δοκεῖ εἶναί τισι τοιοῦτος (ἀναιρουμένου τε γὰρ οὐδὲν εἶναι, καὶ ὁρίζειν πάντα)· ἔτι τὸ τί ἦν εἶναι, οὗ ὁ λόγος ὁρισμός, καὶ τοῦτο οὐσία λέγεται ἑκάστου. συμβαίνει δὴ κατὰ δύο τρόπους τὴν οὐσίαν λέγεσθαι, τό θ' ὑποκείμενον ἔσχατον, ὃ μηκέτι κατ' ἄλλου λέγεται, καὶ ὃ ἂν τόδε τι ὂν καὶ χωριστὸν ᾖ· τοιοῦτον δὲ ἑκάστου ἡ μορφὴ καὶ τὸ εἶδος.	Further, it means all the parts present within such things that define them and signify a "this", and with whose removal the whole is removed—as body is removed with the removal of the plane, as some say, and the plane with the removal of the line; and in general number seems to some to be of this kind (for if it is removed, they say, nothing exists, and it defines everything). Further, the essence, whose account is a definition, is also called the substance of each thing. It follows, then, that substance is spoken of in two ways: the ultimate underlying subject, which is no longer said of anything else; and whatever, being a "this", is also separable—and such is the shape and form of each thing.

SAME, OTHER, DIFFERENT, LIKE

Sameness is a kind of oneness; other, different and like are defined from it.

GREEK	ENGLISH
ταὐτὰ λέγεται τὰ μὲν κατὰ συμβεβηκός, οἷον τὸ λευκὸν καὶ τὸ μουσικὸν τὸ αὐτὸ ὅτι τῷ αὐτῷ συμβέβηκε, καὶ ἄνθρωπος καὶ μουσικὸν ὅτι θάτερον θατέρῳ συμβέβηκεν, τὸ δὲ μουσικὸν ἄνθρωπος ὅτι τῷ ἀνθρώπῳ συμβέβηκεν· ἑκατέρῳ δὲ τοῦτο καὶ τούτῳ ἑκάτερον ἐκείνων, καὶ γὰρ τῷ ἀνθρώπῳ τῷ μουσικῷ καὶ ὁ ἄνθρωπος καὶ τὸ μουσικὸν ταὐτὸ λέγεται, καὶ τούτοις ἐκεῖνο (διὸ καὶ πάντα ταῦτα καθόλου οὐ λέγεται· οὐ γὰρ ἀληθὲς εἰπεῖν ὅτι πᾶς ἄνθρωπος ταὐτὸ καὶ τὸ μουσικόν· τὰ γὰρ καθόλου καθ' αὑτὰ ὑπάρχει, τὰ δὲ συμβεβηκότα οὐ καθ' αὑτά· [1018a] ἀλλ' ἐπὶ τῶν καθ' ἕκαστα ἁπλῶς λέγεται·	"The same" is said in some cases accidentally. For instance, the pale and the musical are the same because they are accidental to the same thing; and man and musical, because one is accidental to the other; and the musical is a man, because it is accidental to the man. And the combination is the same as each of these, and each of these as it; for both the man and the musical are said to be the same as the musical man, and it the same as them. (That is why none of these statements is made universally: it is not true to say that every man is the same as the musical. For universals belong in their own right, whereas accidents do not belong in their own right; [1018a] they are said without qualification only of particulars.

CHAPTER 9

GREEK

ENGLISH

1018a ταὐτὸ γὰρ δοκεῖ Σωκράτης καὶ Σωκράτης εἶναι μουσικός· τὸ δὲ Σωκράτης οὐκ ἐπὶ πολλῶν, διὸ οὐ πᾶς Σωκράτης λέγεται ὥσπερ πᾶς ἄνθρωπος)·—καὶ τὰ μὲν οὕτως λέγεται ταὐτά, τὰ δὲ καθ' αὑτὰ ὁσαχῶσπερ καὶ τὸ ἕν· καὶ γὰρ ὧν ἡ ὕλη μία ἢ εἴδει ἢ ἀριθμῷ ταὐτὰ λέγεται καὶ ὧν ἡ οὐσία μία, ὥστε φανερὸν ὅτι ἡ ταυτότης ἑνότης τίς ἐστιν ἢ πλειόνων τοῦ εἶναι ἢ ὅταν χρῆται ὡς πλείοσιν, οἷον ὅταν λέγῃ αὐτὸ αὑτῷ ταὐτόν· ὡς δυσὶ γὰρ χρῆται αὐτῷ.—ἕτερα δὲ λέγεται ὧν ἢ τὰ εἴδη πλείω ἢ ἡ ὕλη ἢ ὁ λόγος τῆς οὐσίας· καὶ ὅλως ἀντικειμένως τῷ ταὐτῷ λέγεται τὸ ἕτερον.

For Socrates and musical Socrates are thought to be the same; but "Socrates" is not said of many things, which is why we do not say "every Socrates" as we say "every man".) —Some things, then, are called the same in this way; others are the same in their own right, in as many ways as things are one. For things whose matter is one, either in form or in number, are called the same, and so are things whose substance is one. So it is evident that sameness is a kind of oneness in the being either of more than one thing, or of one thing treated as more than one—as when one says that a thing is the same as itself; for one treats it as two. —Things are called other whose forms, or matter, or account of substance, are more than one; and in general "other" is said in ways opposed to "the same".

διάφορα δὲ λέγεται ὅσ' ἕτερά ἐστι τὸ αὐτό τι ὄντα, μὴ μόνον ἀριθμῷ ἀλλ' ἢ εἴδει ἢ γένει ἢ ἀναλογίᾳ· ἔτι ὧν ἕτερον τὸ γένος, καὶ τὰ ἐναντία, καὶ ὅσα ἔχει ἐν τῇ οὐσίᾳ τὴν ἑτερότητα. ὅμοια λέγεται τά τε πάντῃ ταὐτὸ πεπονθότα, καὶ τὰ πλείω ταὐτὰ πεπονθότα ἢ ἕτερα, καὶ ὧν ἡ ποιότης μία· καὶ καθ' ὅσα ἀλλοιοῦσθαι ἐνδέχεται τῶν ἐναντίων, τούτων τὸ πλείω ἔχον ἢ κυριώτερα ὅμοιον τούτῳ. ἀντικειμένως δὲ τοῖς ὁμοίοις τὰ ἀνόμοια.

Things are called different that are other while being the same in some respect—not only in number, but in species or genus or by analogy; further, things whose genus is other, and contraries, and things that have their otherness in their substance. Things are called like that have the same attributes in every respect, or more of their attributes the same than different, or whose quality is one. And whatever shares more of the contraries in respect of which a thing can be altered, or the more important of them, is like that thing. Things unlike are those called so in ways opposed to the like.

OPPOSITES AND CONTRARIES

The kinds of opposition, and what it is to differ in species.

GREEK

ENGLISH

ἀντικείμενα λέγεται ἀντίφασις καὶ τἀναντία καὶ τὰ πρός τι καὶ στέρησις καὶ ἕξις καὶ ἐξ ὧν καὶ εἰς ἃ ἔσχατα αἱ γενέσεις καὶ φθοραί· καὶ ὅσα μὴ ἐνδέχεται ἅμα παρεῖναι τῷ ἀμφοῖν δεκτικῷ, ταῦτα ἀντικεῖσθαι λέγεται ἢ αὐτὰ ἢ ἐξ ὧν ἐστίν. φαιὸν γὰρ καὶ λευκὸν ἅμα τῷ αὐτῷ οὐχ ὑπάρχει· διὸ ἐξ ὧν ἐστὶν ἀντίκειται. ἐναντία λέγεται τά τε μὴ δυνατὰ ἅμα τῷ αὐτῷ παρεῖναι τῶν διαφερόντων κατὰ γένος, καὶ τὰ πλεῖστον διαφέροντα τῶν ἐν τῷ αὐτῷ γένει, καὶ τὰ πλεῖστον διαφέροντα τῶν ἐν ταὐτῷ δεκτικῷ, καὶ τὰ πλεῖστον διαφέροντα τῶν ὑπὸ τὴν αὐτὴν δύναμιν, καὶ ὧν ἡ διαφορὰ μεγίστη ἢ ἁπλῶς ἢ κατὰ γένος ἢ κατ' εἶδος.

Things called opposite are contradictories, contraries, relatives, privation and possession, and the extremes from which and into which generation and destruction proceed. And things that cannot be present together in what is receptive of both are said to be opposed—either they themselves or the things they are made of. For grey and white do not belong to the same thing at the same time; that is why the things they are made of are opposed. Things called contrary are: those differ-

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ing in genus that cannot be present in the same thing at the same time; those differing most among things in the same genus; those differing most among things in the same receptive subject; those differing most among things that fall under the same capacity; and those whose difference is greatest, either without qualification or in genus or in species.

τὰ δ' ἄλλα ἐναντία λέγεται τὰ μὲν τῷ τὰ τοιαῦτα ἔχειν, τὰ δὲ τῷ δεκτικὰ εἶναι τῶν τοιούτων, τὰ δὲ τῷ ποιητικὰ ἢ παθητικὰ εἶναι τῶν τοιούτων, ἢ ποιοῦντα ἢ πάσχοντα, ἢ ἀποβολαὶ ἢ λήψεις, ἢ ἕξεις ἢ στερήσεις εἶναι τῶν τοιούτων.

Other things are called contrary because they have such contraries, or because they are receptive of them, or because they are able to produce or to undergo them, or are actually producing or undergoing them, or are losses or acquisitions, or possessions or privations, of them.

ἐπεὶ δὲ τὸ ἓν καὶ τὸ ὂν πολλαχῶς λέγεται, ἀκολουθεῖν ἀνάγκη καὶ τἆλλα ὅσα κατὰ ταῦτα λέγεται, ὥστε καὶ τὸ ταὐτὸν καὶ τὸ ἕτερον καὶ τὸ ἐναντίον, ὥστ' εἶναι ἕτερον καθ' ἑκάστην κατηγορίαν.—ἕτερα δὲ τῷ εἴδει λέγεται ὅσα τε ταὐτοῦ γένους ὄντα μὴ ὑπάλληλά ἐστι, [1018b] καὶ ὅσα ἐν τῷ αὐτῷ γένει ὄντα διαφορὰν ἔχει, καὶ ὅσα ἐν τῇ οὐσίᾳ ἐναντίωσιν ἔχει· καὶ τὰ ἐναντία ἕτερα τῷ εἴδει ἀλλήλων ἢ πάντα ἢ τὰ λεγόμενα πρώτως, καὶ ὅσων ἐν τῷ τελευταίῳ τοῦ γένους εἴδει οἱ λόγοι ἕτεροι (οἷον ἄνθρωπος καὶ ἵππος ἄτομα τῷ γένει οἱ δὲ λόγοι ἕτεροι αὐτῶν), καὶ ὅσα ἐν τῇ αὐτῇ οὐσίᾳ ὄντα ἔχει διαφοράν. ταὐτὰ δὲ τῷ εἴδει τὰ ἀντικειμένως λεγόμενα τούτοις.

Since "one" and "being" are said in many ways, the other terms said with reference to them must follow suit, and so must "the same", "other" and "contrary", so that they differ in each category. — Things are called other in species that belong to the same genus but are not subordinate to one another, [1018b] and those that are in the same genus and have a differentia, and those that have a contrariety in their substance. Contraries, too, are other in species from one another—either all of them, or those so called in the primary sense—and so are things whose accounts differ in the lowest species of the genus (man and horse, for instance, are indivisible in genus, but their accounts are different), and things that are in the same substance but have a difference. Things the same in species are those called so in ways opposed to these.

PRIOR AND POSTERIOR

Things are prior in place, time, motion, capacity, order, knowledge, and nature.

GREEK

ENGLISH

1018b πρότερα καὶ ὕστερα λέγεται ἔνια μέν, ὡς ὄντος τινὸς πρώτου καὶ ἀρχῆς ἐν ἑκάστῳ γένει, τῷ ἐγγύτερον ⟨εἶναι⟩ ἀρχῆς τινὸς ὡρισμένης ἢ ἁπλῶς καὶ τῇ φύσει ἢ πρός τι ἢ ποὺ ἢ ὑπό τινων, οἷον τὰ μὲν κατὰ τόπον τῷ εἶναι ἐγγύτερον ἢ φύσει τινὸς τόπου ὡρισμένου (οἷον τοῦ μέσου ἢ τοῦ ἐσχάτου) ἢ πρὸς τὸ τυχόν, τὸ δὲ πορρώτερον ὕστερον· τὰ δὲ κατὰ χρόνον (τὰ μὲν γὰρ τῷ πορρώτερον τοῦ νῦν, οἷον ἐπὶ τῶν γενομένων, πρότερον γὰρ τὰ Τρωϊκὰ τῶν Μηδικῶν ὅτι πορρώτερον ἀπέχει τοῦ νῦν· τὰ δὲ τῷ ἐγγύτερον τοῦ νῦν, οἷον ἐπὶ τῶν μελλόντων, πρότερον γὰρ Νέμεα Πυθίων ὅτι ἐγγύτερον τοῦ νῦν τῷ νῦν ὡς ἀρχῇ καὶ πρώτῳ χρησαμένων)·

Things are called prior and posterior in some cases—on the assumption that there is something first, a principle, in each genus—by being nearer to some determinate principle, either without qualification and by nature, or relative to something, or in some place, or in the judgment of certain people. Some things, for instance, are prior in place, by being nearer either to some place determined by nature (such as the middle or the extremity) or to some chance point; what is further away is posterior. Others are prior in time. Some are so by being further from the present, as with past events: the Trojan War is prior to the Persian

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Wars, because it is further removed from the present. Others by being nearer to the present, as with future events: the Nemean games are prior to the Pythian, because they are nearer the present, when we treat the present as principle and starting point.[10]

CHAPTER 11

GREEK

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τὰ δὲ κατὰ κίνησιν (τὸ γὰρ ἐγγύτερον τοῦ πρώτου κινήσαντος πρότερον, οἷον παῖς ἀνδρός· ἀρχὴ δὲ καὶ αὕτη τις ἁπλῶς)· τὰ δὲ κατὰ δύναμιν (τὸ γὰρ ὑπερέχον τῇ δυνάμει πρότερον, καὶ τὸ δυνατώτερον· τοιοῦτον δ' ἐστὶν οὗ κατὰ τὴν προαίρεσιν ἀνάγκη ἀκολουθεῖν θάτερον καὶ τὸ ὕστερον, ὥστε μὴ κινοῦντός τε ἐκείνου μὴ κινεῖσθαι καὶ κινοῦντος κινεῖσθαι· ἡ δὲ προαίρεσις ἀρχή)· τὰ δὲ κατὰ τάξιν (ταῦτα δ' ἐστὶν ὅσα πρός τι ἓν ὡρισμένον διέστηκε κατά τινα λόγον, οἷον παραστάτης τριτοστάτου πρότερον καὶ παρανήτη νήτης· ἔνθα μὲν γὰρ ὁ κορυφαῖος ἔνθα δὲ ἡ μέση ἀρχή)·—ταῦτα μὲν οὖν πρότερα τοῦτον λέγεται τὸν τρόπον, ἄλλον δὲ τρόπον τὸ τῇ γνώσει πρότερον ὡς καὶ ἁπλῶς πρότερον.

Others are prior in motion; for what is nearer the first mover is prior, as the boy is prior to the man —and this too is a principle, without qualification. Others are prior in capacity; for what exceeds in capacity is prior, that is, the more capable. Such is that according to whose decision the other, posterior thing must follow, so that when it does not move the other, the other is not moved, and when it does, it is—and the decision is a principle. Others are prior in order: these are things placed at intervals on some principle with reference to some one determinate thing. The leader's neighbor in a chorus, for instance, is prior to the third in line, and the next-to-highest string to the highest; for in the one case the leader is the principle, in the other the middle string. —These, then, are called prior in this way. In another way, what is prior in knowledge is treated as prior without qualification.[11]

τούτων δὲ ἄλλως τὰ κατὰ τὸν λόγον καὶ τὰ κατὰ τὴν αἴσθησιν. κατὰ μὲν γὰρ τὸν λόγον τὰ καθόλου πρότερα κατὰ δὲ τὴν αἴσθησιν τὰ καθ' ἕκαστα· καὶ κατὰ τὸν λόγον δὲ τὸ συμβεβηκὸς τοῦ ὅλου πρότερον, οἷον τὸ μουσικὸν τοῦ μουσικοῦ ἀνθρώπου· οὐ γὰρ ἔσται ὁ λόγος ὅλος ἄνευ τοῦ μέρους· καίτοι οὐκ ἐνδέχεται μουσικὸν εἶναι μὴ ὄντος μουσικοῦ τινός. ἔτι πρότερα λέγεται τὰ τῶν προτέρων πάθη, οἷον εὐθύτης λειότητος· τὸ μὲν γὰρ γραμμῆς καθ' αὑτὴν πάθος τὸ δὲ ἐπιφανείας. [1019a] τὰ μὲν δὴ οὕτω λέγεται πρότερα καὶ ὕστερα, τὰ δὲ κατὰ φύσιν καὶ οὐσίαν, ὅσα ἐνδέχεται εἶναι ἄνευ ἄλλων, ἐκεῖνα δὲ ἄνευ ἐκείνων μή· ᾗ διαιρέσει ἐχρήσατο Πλάτων.

Among these, things prior in account and things prior in perception are prior in different ways. In account universals are prior, in perception particulars. And in account the accident is prior to the whole—the musical, for instance, to the musical man; for the account will not be whole without the part. And yet there cannot be anything musical unless someone is musical. Further, the attributes of prior things are called prior—straightness, for instance, is prior to smoothness; for the one is an attribute of the line in its own right, the other of the surface. [1019a] Some things, then, are called prior and posterior in this way; others in respect of nature and substance, namely those that can exist without other things while the others cannot exist without them—a distinction that Plato used.

1019a (ἐπεὶ δὲ τὸ εἶναι πολλαχῶς, πρῶτον μὲν τὸ ὑποκείμενον πρότερον, διὸ ἡ οὐσία πρότερον, ἔπειτα ἄλλως τὰ κατὰ

(Since "to be" has many senses, first the underlying subject is prior, which is why substance is pri-

10 The Nemean and Pythian games were Panhellenic athletic festivals; the Persian Wars were fought in 490–479 BC.

GREEK

δύναμιν καὶ κατ' ἐντελέχειαν· τὰ μὲν γὰρ κατὰ δύναμιν πρότερά ἐστι τὰ δὲ κατὰ ἐντελέχειαν, οἷον κατὰ δύναμιν μὲν ἡ ἡμίσεια τῆς ὅλης καὶ τὸ μόριον τοῦ ὅλου καὶ ἡ ὕλη τῆς οὐσίας, κατ' ἐντελέχειαν δ' ὕστερον· διαλυθέντος γὰρ κατ' ἐντελέχειαν ἔσται.) τρόπον δή τινα πάντα τὰ πρότερον καὶ ὕστερον λεγόμενα κατὰ ταῦτα λέγεται· τὰ μὲν γὰρ κατὰ γένεσιν ἐνδέχεται ἄνευ τῶν ἑτέρων εἶναι, οἷον τὸ ὅλον τῶν μορίων, τὰ δὲ κατὰ φθοράν, οἷον τὸ μόριον τοῦ ὅλου. ὁμοίως δὲ καὶ τἆλλα.

ENGLISH

or; and second, in a different way, things are prior with respect to potentiality and with respect to actuality. Some things are prior in potentiality, others in actuality: in potentiality, for instance, the half is prior to the whole line, the part to the whole, and the matter to the substance; but in actuality they are posterior, since only when the whole has been dissolved will they exist in actuality.) In a way, then, everything called prior and posterior is so called in these senses. For some things can exist without the others with respect to coming-to-be, as the whole can without its parts; others with respect to passing away, as the part can without the whole. And the same holds for the rest.

CAPACITY AND POTENTIALITY

A capacity is a principle of change in another thing or in the thing as other.

GREEK

δύναμις λέγεται ἡ μὲν ἀρχὴ κινήσεως ἢ μεταβολῆς ἡ ἐν ἑτέρῳ ἢ ᾗ ἕτερον, οἷον ἡ οἰκοδομικὴ δύναμίς ἐστιν ἣ οὐχ ὑπάρχει ἐν τῷ οἰκοδομουμένῳ, ἀλλ' ἡ ἰατρικὴ δύναμις οὖσα ὑπάρχοι ἂν ἐν τῷ ἰατρευομένῳ, ἀλλ' οὐχ ᾗ ἰατρευόμενος. ἡ μὲν οὖν ὅλως ἀρχὴ μεταβολῆς ἢ κινήσεως λέγεται δύναμις ἐν ἑτέρῳ ἢ ᾗ ἕτερον, ἡ δ' ὑφ' ἑτέρου ἢ ᾗ ἕτερον (καθ' ἣν γὰρ τὸ πάσχον πάσχει τι, ὁτὲ μὲν ἐὰν ὁτιοῦν, δυνατὸν αὐτό φαμεν εἶναι παθεῖν, ὁτὲ δ' οὐ κατὰ πᾶν πάθος ἀλλ' ἂν ἐπὶ τὸ βέλτιον)· ἔτι ἡ τοῦ καλῶς τοῦτ' ἐπιτελεῖν ἢ κατὰ προαίρεσιν· ἐνίοτε γὰρ τοὺς μόνον ἂν πορευθέντας ἢ εἰπόντας, μὴ καλῶς δὲ ἢ μὴ ὡς προείλοντο, οὔ φαμεν δύνασθαι λέγειν ἢ βαδίζειν· ὁμοίως δὲ καὶ ἐπὶ τοῦ πάσχειν.

ἔτι ὅσαι ἕξεις καθ' ἃς ἀπαθῆ ὅλως ἢ ἀμετάβλητα ἢ μὴ ῥᾳδίως ἐπὶ τὸ χεῖρον εὐμετακίνητα, δυνάμεις λέγονται· κλᾶται μὲν γὰρ καὶ συντρίβεται καὶ κάμπτεται καὶ ὅλως φθείρεται οὐ τῷ δύνασθαι ἀλλὰ τῷ μὴ δύνασθαι καὶ

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"Potentiality" (or "capacity") means, first, a principle of motion or change that is in something other than the thing changed, or in the same thing but as other. The craft of building, for instance, is a capacity that is not present in the thing being built; the craft of medicine, on the other hand, which is a capacity, might be present in the person being healed, but not insofar as he is being healed. So "capacity" means the principle of change or motion in general, in something other or in the thing as other; and it also means the principle of being changed by something other, or by the thing itself as other. (For it is in virtue of this principle that what is acted on is acted on in some way: sometimes we say it is capable of being acted on if it can be affected in any way at all, and sometimes not with respect to every affection but only if it can be affected for the better.) Further, it means the capacity to accomplish this well, or as one intends. For sometimes, when people could merely walk or speak, but not well or not as they intended, we say they are not able to speak or walk. And similarly in the case of being acted on.

Further, all states in virtue of which things are altogether unaffected, or unchangeable, or not easily moved for the worse, are called capacities. For things get broken, crushed, bent, and in general

11 The leader stood first in a chorus line; on the lyre the nētē was the highest-pitched string and the mesē the middle one.

GREEK

ἐλλείπειν τινός· ἀπαθῆ δὲ τῶν τοιούτων ἃ μόλις καὶ ἠρέμα πάσχει διὰ δύναμιν καὶ τῷ δύνασθαι καὶ τῷ ἔχειν πώς.

λεγομένης δὲ τῆς δυνάμεως τοσαυταχῶς, καὶ τὸ δυνατὸν ἕνα μὲν τρόπον λεχθήσεται τὸ ἔχον κινήσεως ἀρχὴν ἢ μεταβολῆς (καὶ γὰρ τὸ στατικὸν δυνατόν τι) ἐν ἑτέρῳ ἢ ᾗ ἕτερον, ἕνα δ' ἐὰν ἔχῃ τι αὐτοῦ ἄλλο δύναμιν τοιαύτην,
1019b ἕνα δ' ἐὰν ἔχῃ μεταβάλλειν ἐφ' ὁτιοῦν δύναμιν, εἴτ' ἐπὶ τὸ χεῖρον εἴτ' ἐπὶ τὸ βέλτιον (καὶ γὰρ τὸ φθειρόμενον δοκεῖ δυνατὸν εἶναι φθείρεσθαι, ἢ οὐκ ἂν φθαρῆναι εἰ ἦν ἀδύνατον· νῦν δὲ ἔχει τινὰ διάθεσιν καὶ αἰτίαν καὶ ἀρχὴν τοῦ τοιούτου πάθους· ὁτὲ μὲν δὴ τῷ ἔχειν τι δοκεῖ, ὁτὲ δὲ τῷ ἐστερῆσθαι τοιοῦτον εἶναι· εἰ δ' ἡ στέρησίς ἐστιν ἕξις πως, πάντα τῷ ἔχειν ἂν εἴη τι, [εἰ δὲ μὴ] ὥστε τῷ τε ἔχειν ἕξιν τινὰ καὶ ἀρχήν ἐστι δυνατὸν [ὁμωνύμως] καὶ τῷ ἔχειν τὴν τούτου στέρησιν, εἰ ἐνδέχεται ἔχειν στέρησιν· ⟨εἰ δὲ μή, ὁμωνύμως⟩)· ἕνα δὲ τῷ μὴ ἔχειν αὐτοῦ δύναμιν ἢ ἀρχὴν ἄλλο ἢ ᾗ ἄλλο φθαρτικήν.

1019b ἔτι δὲ ταῦτα πάντα ἢ τῷ μόνον ἂν συμβῆναι γενέσθαι ἢ μὴ γενέσθαι, ἢ τῷ καλῶς. καὶ γὰρ ἐν τοῖς ἀψύχοις ἔνεστιν ἡ τοιαύτη δύναμις, οἷον ἐν τοῖς ὀργάνοις· τὴν μὲν γὰρ δύνασθαί φασι φθέγγεσθαι λύραν, τὴν δ' οὐδέν, ἂν ᾗ μὴ εὔφωνος. ἀδυναμία δὲ ἐστὶ στέρησις δυνάμεως καὶ τῆς τοιαύτης ἀρχῆς οἵα εἴρηται, ἢ ὅλως ἢ τῷ πεφυκότι ἔχειν, ἢ καὶ ὅτε πέφυκεν ἤδη ἔχειν· οὐ γὰρ ὁμοίως ἂν φαῖεν ἀδύνατον εἶναι γεννᾶν παῖδα καὶ ἄνδρα καὶ εὐνοῦχον. ἔτι δὲ καθ' ἑκατέραν δύναμιν ἔστιν ἀδυναμία ἀντικειμένη, τῇ τε μόνον κινητικῇ καὶ τῇ καλῶς κινητικῇ.

καὶ ἀδύνατα δὴ τὰ μὲν κατὰ τὴν ἀδυναμίαν ταύτην λέγεται, τὰ δὲ ἄλλον τρόπον, οἷον δυνατόν τε καὶ ἀδύνατον, ἀδύνατον μὲν οὗ τὸ ἐναντίον ἐξ ἀνάγκης ἀληθές (οἷον τὸ τὴν διάμετρον σύμμετρον εἶναι ἀδύνατον

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destroyed not because they are capable but because they are incapable and lack something; whereas things are unaffected by such processes when they are barely and slightly affected by them, because of a capacity—because they are capable and are in a certain condition.

Since "capacity" has this many senses, "capable" too will be said in one way of what has a principle of motion or change in something other or in itself as other (for even what can bring something to a halt is capable of something); in another way, of that over which something else has such a capacity; 1019b and in another way, of what has a capacity to change in any direction at all, whether for the worse or for the better. (For even what is perishing seems to be capable of perishing; otherwise it would not have perished, if that were impossible for it. As it is, it has a certain disposition and cause and principle of such an affection. Sometimes it seems to be so by having something, sometimes by being deprived of something. But if privation is in a way a having, then everything will be capable by having something. So a thing is capable both by having a certain state and principle and by having the privation of it, if it is possible to have a privation; if not, "capable" is used homonymously in the two cases.) And in another way a thing is called capable because nothing else, or itself as other, has a capacity or principle for destroying it.

Further, all these are so called either because the thing might merely happen to come about or not come about, or because it might do so well. For even inanimate things have a capacity of this sort, instruments for example: people say one lyre is able to sound and another not at all, if it does not have a good tone. Incapacity is the privation of capacity—of such a principle as has been described—either altogether, or in what would naturally have it, or even at the time when it would naturally already have it; for people would not say in the same sense that a boy, a man, and a eunuch are incapable of begetting. Further, corresponding to each kind of capacity there is an opposite incapacity: both to the capacity for merely producing motion and to the capacity for producing it well.

Some things, then, are called incapable, or impossible, in virtue of this sort of incapacity, and others in another way, namely as the possible and the impossible are so called. The impossible is

GREEK	ENGLISH
ὅτι ψεῦδος τὸ τοιοῦτον οὗ τὸ ἐναντίον οὐ μόνον ἀληθὲς ἀλλὰ καὶ ἀνάγκη [ἀσύμμετρον εἶναι]· τὸ ἄρα σύμμετρον οὐ μόνον ψεῦδος ἀλλὰ καὶ ἐξ ἀνάγκης ψεῦδος)· τὸ δ' ἐναντίον τούτῳ, τὸ δυνατόν, ὅταν μὴ ἀναγκαῖον ᾖ τὸ ἐναντίον ψεῦδος εἶναι, οἷον τὸ καθῆσθαι ἄνθρωπον δυνατόν· οὐ γὰρ ἐξ ἀνάγκης τὸ μὴ καθῆσθαι ψεῦδος. τὸ μὲν οὖν δυνατὸν ἕνα μὲν τρόπον, ὥσπερ εἴρηται, τὸ μὴ ἐξ ἀνάγκης ψεῦδος σημαίνει, ἕνα δὲ τὸ ἀληθές [εἶναι], ἕνα δὲ τὸ ἐνδεχόμενον ἀληθὲς εἶναι. κατὰ μεταφορὰν δὲ ἡ ἐν γεωμετρίᾳ λέγεται δύναμις.	that whose contrary is necessarily true. (For example, that the diagonal is commensurable is impossible, because such a statement is false and its contrary is not only true but necessary; so its being commensurable is not only false but necessarily false.) The contrary of this, the possible, is when it is not necessary that the contrary be false: for example, that a man is sitting is possible, since that he is not sitting is not necessarily false. So "possible" in one sense, as has been said, means what is not necessarily false; in another, what is true; in another, what may be true. And it is by metaphor that we speak of a "power" in geometry.[12]
ταῦτα μὲν οὖν τὰ δυνατὰ οὐ κατὰ δύναμιν· τὰ δὲ λεγόμενα κατὰ δύναμιν πάντα λέγεται πρὸς τὴν πρώτην [μίαν]· 1020a αὕτη δ' ἐστὶν ἀρχὴ μεταβολῆς ἐν ἄλλῳ ἢ ᾗ ἄλλο. τὰ γὰρ ἄλλα λέγεται δυνατὰ τῷ τὰ μὲν ἔχειν αὐτῶν ἄλλο τι τοιαύτην δύναμιν τὰ δὲ μὴ ἔχειν τὰ δὲ ὡδὶ ἔχειν. ὁμοίως δὲ καὶ τὰ ἀδύνατα. ὥστε ὁ κύριος ὅρος τῆς πρώτης δυνάμεως ἂν εἴη ἀρχὴ μεταβλητικὴ ἐν ἄλλῳ ἢ ᾗ ἄλλο.	These, then, are senses of "possible" that do not refer to a capacity. But all the things said with reference to a capacity are said in relation to the primary sense; 1020a and this is a principle of change in something other or in the thing as other. For other things are called capable because something else has such a capacity over them, or because it does not, or because it has it in a particular way. The same holds for things called incapable. So the governing definition of capacity in the primary sense would be: a principle of change in something other or in the thing as other.

QUANTITY

Quantity is what can be divided into countable or measurable parts.

GREEK	ENGLISH
1020a ποσὸν λέγεται τὸ διαιρετὸν εἰς ἐνυπάρχοντα ὧν ἑκάτερον ἢ ἕκαστον ἕν τι καὶ τόδε τι πέφυκεν εἶναι. πλῆθος μὲν οὖν ποσόν τι ἐὰν ἀριθμητὸν ᾖ, μέγεθος δὲ ἂν μετρητὸν ᾖ. λέγεται δὲ πλῆθος μὲν τὸ διαιρετὸν δυνάμει εἰς μὴ συνεχῆ, μέγεθος δὲ τὸ εἰς συνεχῆ· μεγέθους δὲ τὸ μὲν ἐφ' ἓν συνεχὲς μῆκος τὸ δ' ἐπὶ δύο πλάτος τὸ δ' ἐπὶ τρία βάθος. τούτων δὲ πλῆθος μὲν τὸ πεπερασμένον ἀριθμὸς μῆκος δὲ γραμμὴ πλάτος δὲ ἐπιφάνεια βάθος δὲ σῶμα. ἔτι τὰ μὲν λέγεται καθ' αὑτὰ ποσά, τὰ δὲ κατὰ συμβεβηκός, οἷον ἡ μὲν γραμμὴ ποσόν τι καθ' ἑαυτό, τὸ δὲ μουσικὸν κατὰ συμβεβηκός.	"Quantity" means what is divisible into constituents, each or every one of which is by nature some one thing and a "this." A plurality is a quantity if it is countable, a magnitude if it is measurable. A plurality is what is divisible potentially into parts that are not continuous, a magnitude what is divisible into continuous parts. Of magnitudes, what is continuous in one dimension is length, in two breadth, in three depth. Of these, limited plurality is number, limited length a line, breadth a surface, depth a body. Further, some things are called quantities in their own right, others accidentally: a line, for example, is a quantity in its own right, the musical accidentally.
τῶν δὲ καθ' αὑτὰ τὰ μὲν κατ' οὐσίαν ἐστίν, οἷον ἡ γραμμὴ ποσόν τι (ἐν γὰρ τῷ λόγῳ τῷ τί ἐστι λέγοντι τὸ ποσόν τι	Of the things that are quantities in their own right, some are so by their substance—a line, for in-

12 In Greek geometry *dunamis* ("power") was used for a square, e.g. of a line.

GREEK	ENGLISH
ὑπάρχει), τὰ δὲ πάθη καὶ ἕξεις τῆς τοιαύτης ἐστὶν οὐσίας, οἷον τὸ πολὺ καὶ τὸ ὀλίγον, καὶ μακρὸν καὶ βραχύ, καὶ πλατὺ καὶ στενόν, καὶ βαθὺ καὶ ταπεινόν, καὶ βαρὺ καὶ κοῦφον, καὶ τὰ ἄλλα τὰ τοιαῦτα. ἔστι δὲ καὶ τὸ μέγα καὶ τὸ μικρὸν καὶ μεῖζον καὶ ἔλαττον, καὶ καθ' αὑτὰ καὶ πρὸς ἄλληλα λεγόμενα, τοῦ ποσοῦ πάθη καθ' αὑτά· μεταφέρονται μέντοι καὶ ἐπ' ἄλλα ταῦτα τὰ ὀνόματα.	stance, is a quantity, since "quantity" is present in the account that says what it is—while others are affections and states of this sort of substance, such as much and little, long and short, broad and narrow, deep and shallow, heavy and light, and the rest of this kind. Large and small, too, and larger and smaller, whether said in their own right or in relation to one another, are affections of quantity in its own right; these names are, however, also transferred to other things.
τῶν δὲ κατὰ συμβεβηκὸς λεγομένων ποσῶν τὰ μὲν οὕτως λέγεται ὥσπερ ἐλέχθη ὅτι τὸ μουσικὸν ποσὸν καὶ τὸ λευκὸν τῷ εἶναι ποσόν τι ᾧ ὑπάρχουσι, τὰ δὲ ὡς κίνησις καὶ χρόνος· καὶ γὰρ ταῦτα πόσ' ἄττα λέγεται καὶ συνεχῆ τῷ ἐκεῖνα διαιρετὰ εἶναι ὧν ἐστὶ ταῦτα πάθη. λέγω δὲ οὐ τὸ κινούμενον ἀλλ' ὃ ἐκινήθη· τῷ γὰρ ποσὸν εἶναι ἐκεῖνο καὶ ἡ κίνησις ποσή, ὁ δὲ χρόνος τῷ ταύτην.	Of things called quantities accidentally, some are so called in the way it was said that the musical and the white are quantities, because that to which they belong is a quantity; others in the way that motion and time are. For these too are called quantities of a sort, and continuous, because the things of which they are affections are divisible. I mean not the thing moved but that over which it was moved: because that is a quantity, the motion is a quantity too, and time is a quantity because motion is.

QUALITY

Quality is the differentia of a substance, or an affection of things in motion.

GREEK	ENGLISH
[τὸ] ποιὸν λέγεται ἕνα μὲν τρόπον ἡ διαφορὰ τῆς οὐσίας, οἷον ποιόν τι ἄνθρωπος ζῷον ὅτι δίπουν, ἵππος δὲ τετράπουν, καὶ κύκλος ποιόν τι σχῆμα ὅτι ἀγώνιον, ὡς τῆς διαφορᾶς τῆς κατὰ τὴν οὐσίαν ποιότητος οὔσης· 1020b —ἕνα μὲν δὴ τρόπον τοῦτον λέγεται ἡ ποιότης διαφορὰ οὐσίας, ἕνα δὲ ὡς τὰ ἀκίνητα καὶ τὰ μαθηματικά, ὥσπερ οἱ ἀριθμοὶ ποιοί τινες, οἷον οἱ σύνθετοι καὶ μὴ μόνον ἐφ' ἓν ὄντες ἀλλ' ὧν μίμημα τὸ ἐπίπεδον καὶ τὸ στερεόν (οὗτοι δ' εἰσὶν οἱ ποσάκις ποσοὶ ἢ ποσάκις ποσάκις ποσοί), καὶ ὅλως ὃ παρὰ τὸ ποσὸν ὑπάρχει ἐν τῇ οὐσίᾳ· οὐσία γὰρ ἑκάστου ὃ ἅπαξ, οἷον τῶν ἓξ οὐχ ὃ δὶς ἢ τρὶς εἰσὶν ἀλλ' ὃ ἅπαξ· ἓξ γὰρ ἅπαξ ἕξ.	"Quality" means, in one sense, the differentia of the substance. A human being, for example, is an animal of a certain quality because it is two-footed, a horse because it is four-footed; and a circle is a figure of a certain quality because it has no angles—the differentia with respect to substance being a quality. 1020b In one sense, then, quality means the differentia of substance; in another, it is said in the way that unmoved and mathematical things are qualified: numbers, for instance, have certain qualities—the composite ones, which are not in one dimension only but of which the plane and the solid are copies (these are the numbers that are so many times so much, or so many times so many times so much)—and in general what is present in the substance besides the quantity. For the substance of each number is what it is once: that of six, for example, is not what it is twice or three times, but what it is once, since six is once six.
1020b ἔτι ὅσα πάθη τῶν κινουμένων οὐσιῶν, οἷον θερμότης καὶ ψυχρότης, καὶ λευκότης καὶ μελανία, καὶ βαρύτης καὶ κουφότης, καὶ ὅσα τοιαῦτα, καθ' ἃ λέγονται καὶ	Further, quality means the affections of substances in motion, such as heat and cold, whiteness and blackness, heaviness and lightness, and

GREEK

ἀλλοιοῦσθαι τὰ σώματα μεταβαλλόντων. ἔτι κατ' ἀρετὴν καὶ κακίαν καὶ ὅλως τὸ κακὸν καὶ ἀγαθόν. σχεδὸν δὴ κατὰ δύο τρόπους λέγοιτ' ἂν τὸ ποιόν, καὶ τούτων ἕνα τὸν κυριώτατον· πρώτη μὲν γὰρ ποιότης ἡ τῆς οὐσίας διαφορά (ταύτης δέ τι καὶ ἡ ἐν τοῖς ἀριθμοῖς ποιότης μέρος· διαφορὰ γάρ τις οὐσιῶν, ἀλλ' ἢ οὐ κινουμένων ἢ οὐχ ᾗ κινούμενα), τὰ δὲ πάθη τῶν κινουμένων ᾗ κινούμενα, καὶ αἱ τῶν κινήσεων διαφοραί.

ἀρετὴ δὲ καὶ κακία τῶν παθημάτων μέρος τι· διαφορὰς γὰρ δηλοῦσι τῆς κινήσεως καὶ τῆς ἐνεργείας, καθ' ἃς ποιοῦσιν ἢ πάσχουσι καλῶς ἢ φαύλως τὰ ἐν κινήσει ὄντα· τὸ μὲν γὰρ ὠδὶ δυνάμενον κινεῖσθαι ἢ ἐνεργεῖν ἀγαθὸν τὸ δ' ὠδὶ καὶ ἐναντίως μοχθηρόν. μάλιστα δὲ τὸ ἀγαθὸν καὶ τὸ κακὸν σημαίνει τὸ ποιὸν ἐπὶ τῶν ἐμψύχων, καὶ τούτων μάλιστα ἐπὶ τοῖς ἔχουσι προαίρεσιν.

ENGLISH

all such things, in virtue of which bodies are said to alter when they change. Further, it is said with respect to excellence and badness, and in general of bad and good. Quality, then, may be said in roughly two ways, and of these one is the most proper. The primary quality is the differentia of the substance (and the quality in numbers is a part of this, since it is a differentia of substances, but of substances either not in motion or not insofar as they are in motion). The other is the affections of things in motion insofar as they are in motion, and the differentiae of motions.

Excellence and badness belong among these affections, for they indicate differentiae of the motion and activity by which things in motion act or are acted on well or badly: what can be moved or act in this way is good, and what can do so in that, contrary way is bad. Good and bad signify quality most of all in living things, and among these most of all in those that have the power of decision.

RELATIVES

Things are relative numerically, by capacity to act or be acted on, or as measure to measured.

GREEK

πρός τι λέγεται τὰ μὲν ὡς διπλάσιον πρὸς ἥμισυ καὶ τριπλάσιον πρὸς τριτημόριον, καὶ ὅλως πολλαπλάσιον πρὸς πολλοστημόριον καὶ ὑπερέχον πρὸς ὑπερεχόμενον· τὰ δ' ὡς τὸ θερμαντικὸν πρὸς τὸ θερμαντὸν καὶ τὸ τμητικὸν πρὸς τὸ τμητόν, καὶ ὅλως τὸ ποιητικὸν πρὸς τὸ παθητικόν· τὰ δ' ὡς τὸ μετρητὸν πρὸς τὸ μέτρον καὶ ἐπιστητὸν πρὸς ἐπιστήμην καὶ αἰσθητὸν πρὸς αἴσθησιν.

λέγεται δὲ τὰ μὲν πρῶτα κατ' ἀριθμὸν ἢ ἁπλῶς ἢ ὡρισμένως, πρὸς αὐτοὺς ἢ πρὸς ἕν (οἷον τὸ μὲν διπλάσιον πρὸς ἓν ἀριθμὸς ὡρισμένος, τὸ δὲ πολλαπλάσιον κατ' ἀριθμὸν πρὸς ἕν, οὐχ ὡρισμένον δέ, οἷον τόνδε ἢ τόνδε· [1021a] τὸ δὲ ἡμιόλιον πρὸς τὸ ὑφημιόλιον κατ' ἀριθμὸν πρὸς ἀριθμὸν ὡρισμένον· τὸ δ' ἐπιμόριον πρὸς τὸ ὑπεπιμόριον κατὰ ἀόριστον, ὥσπερ τὸ πολλαπλάσιον πρὸς τὸ ἕν· τὸ δ' ὑπερέχον πρὸς τὸ ὑπερεχόμενον ὅλως ἀόριστον κατ' ἀριθμόν· ὁ γὰρ ἀριθμὸς σύμμετρος, κατὰ μὴ συμμέτρου δὲ ἀριθμὸς οὐ λέγεται, τὸ δὲ ὑπερέχον πρὸς τὸ ὑπερεχόμενον τοσοῦτόν τέ ἐστι καὶ ἔτι, τοῦτο δ' ἀόριστον· ὁπότερον γὰρ ἔτυχέν ἐστιν, ἢ ἴσον ἢ οὐκ ἴσον)·

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Things are called "relative" in some cases as double is to half and triple to a third, and in general multiple to submultiple and exceeding to exceeded; in others as what can heat is to what can be heated, what can cut to what can be cut, and in general what can act to what can be acted on; and in others as the measurable to the measure, the knowable to knowledge, and the perceptible to perception.

Those of the first kind are said numerically, either indefinitely or definitely, in relation to the numbers themselves or to one. (Double in relation to one, for instance, is a definite number; multiple is numerically related to one, but not definitely—not this number or that. [1021a] One and a half in relation to its reciprocal is related numerically to a definite number; the superparticular to the subsuperparticular by an indefinite number, as multiple is to one; and exceeding in relation to exceeded is numerically quite indefinite. For number is commensurable, and number is not predicated of what is not commensurable; but the exceeding is, in relation to the exceeded, so much and some-

GREEK

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thing more, and this is indefinite, since it can be whatever it happens to be, equal or not equal.)[13]

1021a ταῦτά τε οὖν τὰ πρός τι πάντα κατ' ἀριθμὸν λέγεται καὶ ἀριθμοῦ πάθη, καὶ ἔτι τὸ ἴσον καὶ ὅμοιον καὶ ταὐτὸ κατ' ἄλλον τρόπον (κατὰ γὰρ τὸ ἓν λέγεται πάντα, ταὐτὰ μὲν γὰρ ὧν μία ἡ οὐσία, ὅμοια δ' ὧν ἡ ποιότης μία, ἴσα δὲ ὧν τὸ ποσὸν ἕν· τὸ δ' ἓν τοῦ ἀριθμοῦ ἀρχὴ καὶ μέτρον, ὥστε ταῦτα πάντα πρός τι λέγεται κατ' ἀριθμὸν μέν, οὐ τὸν αὐτὸν δὲ τρόπον)· τὰ δὲ ποιητικὰ καὶ παθητικὰ κατὰ δύναμιν ποιητικὴν καὶ παθητικὴν καὶ ἐνεργείας τὰς τῶν δυνάμεων, οἷον τὸ θερμαντικὸν πρὸς τὸ θερμαντὸν ὅτι δύναται, καὶ πάλιν τὸ θερμαῖνον πρὸς τὸ θερμαινόμενον καὶ τὸ τέμνον πρὸς τὸ τεμνόμενον ὡς ἐνεργοῦντα.

All these relatives, then, are said numerically and are affections of number, and so, in a different way, are the equal, the like, and the same. (All of these are said with reference to one: things are the same whose substance is one, like whose quality is one, equal whose quantity is one; and one is the principle and measure of number. So all these are called relative numerically, but not in the same way.) Things that act and are acted on are relative with respect to a capacity for acting and being acted on and to the activities of these capacities: what can heat, for instance, is relative to what can be heated because it is able to, and again what is heating is relative to what is being heated, and what is cutting to what is being cut, as things that are active.

τῶν δὲ κατ' ἀριθμὸν οὐκ εἰσὶν ἐνέργειαι ἀλλ' ἢ ὃν τρόπον ἐν ἑτέροις εἴρηται· αἱ δὲ κατὰ κίνησιν ἐνέργειαι οὐχ ὑπάρχουσιν. τῶν δὲ κατὰ δύναμιν καὶ κατὰ χρόνους ἤδη λέγονται πρός τι οἷον τὸ πεποιηκὸς πρὸς τὸ πεποιημένον καὶ τὸ ποιῆσον πρὸς τὸ ποιησόμενον. οὕτω γὰρ καὶ πατὴρ υἱοῦ λέγεται πατήρ· τὸ μὲν γὰρ πεποιηκὸς τὸ δὲ πεπονθός τί ἐστιν. ἔτι ἕνια κατὰ στέρησιν δυνάμεως, ὥσπερ τὸ ἀδύνατον καὶ ὅσα οὕτω λέγεται, οἷον τὸ ἀόρατον. τὰ μὲν οὖν κατ' ἀριθμὸν καὶ δύναμιν λεγόμενα πρός τι πάντα ἐστὶ πρός τι τῷ ὅπερ ἐστὶν ἄλλου λέγεσθαι αὐτὸ ὅ ἐστιν, ἀλλὰ μὴ τῷ ἄλλο πρὸς ἐκεῖνο· τὸ δὲ μετρητὸν καὶ τὸ ἐπιστητὸν καὶ τὸ διανοητὸν τῷ ἄλλο πρὸς αὐτὸ λέγεσθαι πρός τι λέγονται.

But of numerical relatives there are no activities, except in the way described elsewhere; activities with respect to motion do not belong to them. Of relatives with respect to capacity, some are further said to be relative with respect to times, such as what has made to what has been made and what will make to what will be made. For this is the way a father is called father of a son: the one is something that has acted, the other something that has been acted on. Further, some things are relative by privation of a capacity, such as the incapable and things so described, like the invisible. Things called relative numerically or with respect to capacity, then, are all relative because what they are is said to be of something else, not because something else is relative to them. But the measurable, the knowable, and the thinkable are called relative because something else is said in relation to them.

τό τε γὰρ διανοητὸν σημαίνει ὅτι ἔστιν αὐτοῦ διάνοια, οὐκ ἔστι δ' ἡ διάνοια πρὸς τοῦτο οὗ ἐστὶ διάνοια (δὶς γὰρ ταὐτὸν εἰρημένον ἂν εἴη), ὁμοίως δὲ καὶ τινός ἐστιν ἡ ὄψις ὄψις, οὐχ οὗ ἐστὶν ὄψις (καίτοι γ' ἀληθὲς τοῦτο εἰπεῖν) ἀλλὰ πρὸς χρῶμα ἢ πρὸς ἄλλο τι τοιοῦτον. ἐκείνως δὲ δὶς τὸ αὐτὸ λεχθήσεται, ὅτι ἐστὶν οὗ ἐστὶν ἡ ὄψις.

For "thinkable" signifies that there is thinking of it; but thinking is not relative to that of which it is thinking (for then the same thing would have been said twice). Similarly, sight is sight of something—not of that of which it is sight (although it would be true to say this), but relative to color or something else of that kind. Said the other way, the same thing would be said twice: that sight is of that of which it is sight.

1021b τὰ μὲν οὖν καθ' ἑαυτὰ λεγόμενα πρός τι τὰ μὲν οὕτω λέγεται, τὰ δὲ ἂν τὰ γένη αὐτῶν ᾖ τοιαῦτα, οἷον ἡ ἰατρικὴ

Things called relative in their own right, then, are some of them so called in this way; others if their

13 A "superparticular" ratio is one of the form (n+1):n, such as 3:2 or 4:3.

GREEK	ENGLISH
τῶν πρός τι ὅτι τὸ γένος αὐτῆς ἡ ἐπιστήμη δοκεῖ εἶναι πρός τι· ἔτι καθ' ὅσα τὰ ἔχοντα λέγεται πρός τι, οἷον ἰσότης ὅτι τὸ ἴσον καὶ ὁμοιότης ὅτι τὸ ὅμοιον· τὰ δὲ κατὰ συμβεβηκός, οἷον ἄνθρωπος πρός τι ὅτι συμβέβηκεν αὐτῷ διπλασίῳ εἶναι, τοῦτο δ' ἐστὶ τῶν πρός τι· ἢ τὸ λευκόν, εἰ τῷ αὐτῷ συμβέβηκε διπλασίῳ καὶ λευκῷ εἶναι.	genera are of this kind—medicine, for instance, is among the relatives because its genus, knowledge, is thought to be relative. Further, there are the things in virtue of which what has them is called relative: equality, for example, because the equal is relative, and likeness because the like is. Others are relative accidentally, as a human being is relative because he happens to be double, and double is among the relatives; or the white is, if the same thing happens to be both double and white.

COMPLETE

The complete lacks no part, cannot be surpassed in its kind, and has reached its end.

GREEK	ENGLISH
τέλειον λέγεται ἓν μὲν οὗ μὴ ἔστιν ἔξω τι λαβεῖν μηδὲ ἓν μόριον (οἷον χρόνος τέλειος ἑκάστου οὗτος οὗ μὴ ἔστιν ἔξω λαβεῖν χρόνον τινὰ ὃς τούτου μέρος ἐστὶ τοῦ χρόνου), καὶ τὸ κατ' ἀρετὴν καὶ τὸ εὖ μὴ ἔχον ὑπερβολὴν πρὸς τὸ γένος, οἷον τέλειος ἰατρὸς καὶ τέλειος αὐλητὴς ὅταν κατὰ τὸ εἶδος τῆς οἰκείας ἀρετῆς μηθὲν ἐλλείπωσιν (οὕτω δὲ μεταφέροντες καὶ ἐπὶ τῶν κακῶν λέγομεν συκοφάντην τέλειον καὶ κλέπτην τέλειον, ἐπειδὴ καὶ ἀγαθοὺς λέγομεν αὐτούς, οἷον κλέπτην ἀγαθὸν καὶ συκοφάντην ἀγαθόν· καὶ ἡ ἀρετὴ τελείωσίς τις·	"Complete" means, in one sense, that outside which it is not possible to find even a single one of its parts. The complete time of each thing, for example, is the time outside which it is not possible to find any time that is part of it. It also means what, with respect to excellence and doing well, cannot be surpassed in its kind: as we call a doctor or a flute-player complete when they lack nothing with respect to the form of their proper excellence. (In this way, transferring the word to bad things too, we speak of a complete slanderer and a complete thief, since we call them good as well—a good thief, a good slanderer. And excellence is a kind of completion.

CHAPTER 16

GREEK	ENGLISH
ἕκαστον γὰρ τότε τέλειον καὶ οὐσία πᾶσα τότε τελεία, ὅταν κατὰ τὸ εἶδος τῆς οἰκείας ἀρετῆς μηδὲν ἐλλείπῃ μόριον τοῦ κατὰ φύσιν μεγέθους)· ἔτι οἷς ὑπάρχει τὸ τέλος, σπουδαῖον ⟨ὄν⟩, ταῦτα λέγεται τέλεια· κατὰ γὰρ τὸ ἔχειν τὸ τέλος τέλεια, ὥστ' ἐπεὶ τὸ τέλος τῶν ἐσχάτων τί ἐστι, καὶ ἐπὶ τὰ φαῦλα μεταφέροντες λέγομεν τελείως ἀπολωλέναι καὶ τελείως ἐφθάρθαι, ὅταν μηδὲν ἐλλείπῃ τῆς φθορᾶς καὶ τοῦ κακοῦ ἀλλ' ἐπὶ τῷ ἐσχάτῳ ᾖ· διὸ καὶ ἡ τελευτὴ κατὰ μεταφορὰν λέγεται τέλος, ὅτι ἄμφω ἔσχατα· τέλος δὲ καὶ τὸ οὗ ἕνεκα ἔσχατον.	For each thing is complete, and every substance complete, when with respect to the form of its proper excellence it lacks no part of its natural magnitude.) Further, things that have attained their end, when the end is something worthwhile, are called complete; for they are complete in virtue of having their end. So, since the end is something ultimate, we transfer the word to bad things too and say that something has been completely ruined or completely destroyed, when nothing is lacking to its destruction and badness but it is at the last extreme. This is why death is also called an end by metaphor: both are ultimate. And that for the sake of which is an end and something ultimate.

GREEK	ENGLISH
τὰ μὲν οὖν καθ' αὑτὰ λεγόμενα τέλεια τοσαυταχῶς λέγεται, τὰ μὲν τῷ κατὰ τὸ εὖ μηδὲν ἐλλείπειν μηδ' ἔχειν ὑπερβολὴν μηδὲ ἔξω τι λαβεῖν, τὰ δ' ὅλως κατὰ τὸ μὴ ἔχειν ὑπερβολὴν ἐν ἑκάστῳ γένει μηδ' εἶναί τι ἔξω· 1022a τὰ δὲ ἄλλα ἤδη κατὰ ταῦτα τῷ ἢ ποιεῖν τι τοιοῦτον ἢ ἔχειν ἢ ἁρμόττειν τούτῳ ἢ ἁμῶς γέ πως λέγεσθαι πρὸς τὰ πρώτως λεγόμενα τέλεια.	Things called complete in their own right, then, are so called in all these ways: some because, with respect to doing well, they lack nothing, cannot be surpassed, and have nothing outside them; others because in general they cannot be surpassed in their particular kind and nothing is outside them. 1022a Other things are called complete, in turn, with reference to these, by producing something of this kind, or having it, or fitting it, or being related in one way or another to the things called complete in the primary sense.

LIMIT

A limit is the boundary, form, end, or essence of a thing.

GREEK	ENGLISH
1022a πέρας λέγεται τό τε ἔσχατον ἑκάστου καὶ οὗ ἔξω μηδὲν ἔστι λαβεῖν πρώτου καὶ οὗ ἔσω πάντα πρώτου, καὶ ὃ ἂν ᾖ εἶδος μεγέθους ἢ ἔχοντος μέγεθος, καὶ τὸ τέλος ἑκάστου (τοιοῦτον δ' ἐφ' ὃ ἡ κίνησις καὶ ἡ πρᾶξις, καὶ οὐκ ἀφ' οὗ— ὁτὲ δὲ ἄμφω, καὶ ἀφ' οὗ καὶ ἐφ' ὃ καὶ τὸ οὗ ἕνεκα), καὶ ἡ οὐσία ἡ ἑκάστου καὶ τὸ τί ἦν εἶναι ἑκάστῳ· τῆς γνώσεως γὰρ τοῦτο πέρας· εἰ δὲ τῆς γνώσεως, καὶ τοῦ πράγματος. ὥστε φανερὸν ὅτι ὁσαχῶς τε ἡ ἀρχὴ λέγεται, τοσαυταχῶς καὶ τὸ πέρας, καὶ ἔτι πλεοναχῶς· ἡ μὲν γὰρ ἀρχὴ πέρας τι, τὸ δὲ πέρας οὐ πᾶν ἀρχή.	"Limit" means the last point of each thing, the first point outside which nothing can be found and the first inside which everything is; and whatever is the form of a magnitude or of something that has magnitude; and the end of each thing (that is, what the motion and action are toward, not what they are from—though sometimes it is both, what they are from and what they are toward and that for the sake of which); and the substance of each thing, and the essence of each thing, for this is the limit of knowledge, and if of knowledge, of the thing too. So it is clear that "limit" has as many senses as "principle," and still more; for a principle is a limit, but not every limit is a principle.

"IN VIRTUE OF WHICH" AND "IN ITS OWN RIGHT"

The senses of these phrases, from form and essence to position.

GREEK	ENGLISH
τὸ καθ' ὃ λέγεται πολλαχῶς, ἕνα μὲν τρόπον τὸ εἶδος καὶ ἡ οὐσία ἑκάστου πράγματος, οἷον καθ' ὃ ἀγαθός, αὐτὸ ἀγαθόν, ἕνα δὲ ἐν ᾧ πρώτῳ πέφυκε γίγνεσθαι, οἷον τὸ χρῶμα ἐν τῇ ἐπιφανείᾳ. τὸ μὲν οὖν πρώτως λεγόμενον καθ' ὃ τὸ εἶδός ἐστι, δευτέρως δὲ ὡς ἡ ὕλη ἑκάστου καὶ τὸ ὑποκείμενον ἑκάστῳ πρῶτον. ὅλως δὲ τὸ καθ' ὃ ἰσαχῶς καὶ τὸ αἴτιον ὑπάρξει· κατὰ τί γὰρ ἐλήλυθεν ἢ οὗ ἕνεκα ἐλήλυθε λέγεται, καὶ κατὰ τί παραλελόγισται ἢ συλλελόγισται, ἢ τί τὸ αἴτιον τοῦ συλλογισμοῦ ἢ παραλογισμοῦ. ἔτι δὲ τὸ καθ' ὃ τὸ κατὰ θέσιν λέγεται, καθ' ὃ ἕστηκεν ἢ καθ' ὃ βαδίζει· πάντα γὰρ ταῦτα τόπον σημαίνει καὶ θέσιν. ὥστε καὶ τὸ καθ' αὑτὸ πολλαχῶς ἀνάγκη λέγεσθαι.	"That in virtue of which" has many senses. In one sense it is the form and substance of each thing: that in virtue of which someone is good, for instance, is the good itself. In another, it is that in which, as primary, something naturally comes to be, as color comes to be in a surface. In the primary sense, then, "that in virtue of which" is the form; in a secondary sense it is, as it were, the matter of each thing and the primary underlying subject of each. In general, "that in virtue of which" will have as many senses as "cause." For we say "in virtue of what has he come?" or "for the sake of what has he come?", and "in virtue of what

	GREEK	ENGLISH
		has he reasoned fallaciously, or reasoned validly?" or "what is the cause of the reasoning or the fallacy?" Further, "that in virtue of which" is said with respect to position: that by which he is standing or along which he is walking; for all these signify place and position. So "in its own right" too must have many senses.[14]
	ἓν μὲν γὰρ καθ' αὑτὸ τὸ τί ἦν εἶναι ἑκάστῳ, οἷον ὁ Καλλίας καθ' αὑτὸν Καλλίας καὶ τὸ τί ἦν εἶναι Καλλίᾳ· ἓν δὲ ὅσα ἐν τῷ τί ἐστιν ὑπάρχει, οἷον ζῷον ὁ Καλλίας καθ' αὑτόν· ἐν γὰρ τῷ λόγῳ ἐνυπάρχει τὸ ζῷον· ζῷον γάρ τι ὁ Καλλίας. ἔτι δὲ εἰ ἐν αὑτῷ δέδεκται πρώτῳ ἢ τῶν αὑτοῦ τινί, οἷον ἡ ἐπιφάνεια λευκὴ καθ' ἑαυτήν, καὶ ζῇ ὁ ἄνθρωπος καθ' αὑτόν· ἡ γὰρ ψυχὴ μέρος τι τοῦ ἀνθρώπου, ἐν ᾗ πρώτῃ τὸ ζῆν. ἔτι οὗ μὴ ἔστιν ἄλλο αἴτιον· τοῦ γὰρ ἀνθρώπου πολλὰ αἴτια, τὸ ζῷον, τὸ δίπουν, ἀλλ' ὅμως καθ' αὑτὸν ἄνθρωπος ὁ ἄνθρωπός ἐστιν. ἔτι ὅσα μόνῳ ὑπάρχει καὶ ᾗ μόνον δι' αὐτὸ κεχωρισμένον καθ' αὑτό.	In one sense, what a thing is in its own right is the essence of each thing: Callias, for instance, is in his own right Callias and the essence of Callias. In another sense, whatever is present in the what-it-is: Callias, for instance, is in his own right an animal, since "animal" is present in his account; Callias is a particular animal. Further, if something has been received in the thing itself as primary, or in one of its parts: a surface, for instance, is white in its own right, and a human being lives in his own right, since the soul, in which living primarily resides, is a part of the human being. Further, what has no other cause: a human being has many causes—animal, two-footed—but all the same a human being is a human being in his own right. Further, whatever belongs to a thing alone and insofar as it is alone; hence what is separated is so in its own right.

DISPOSITION

Disposition is the arrangement of a thing's parts.

	GREEK	ENGLISH
1022b	διάθεσις λέγεται τοῦ ἔχοντος μέρη τάξις ἢ κατὰ τόπον ἢ κατὰ δύναμιν ἢ κατ' εἶδος· θέσιν γὰρ δεῖ τινὰ εἶναι, ὥσπερ καὶ τοὔνομα δηλοῖ ἡ διάθεσις.	"Disposition" means the arrangement of something that has parts, either in place or in capacity or in form. For there must be a certain position, as the very name "dis-position" shows.

HAVING, OR STATE

A state is a having, or a disposition by which a thing is well or badly disposed.

	GREEK	ENGLISH
	ἕξις δὲ λέγεται ἕνα μὲν τρόπον οἷον ἐνέργειά τις τοῦ ἔχοντος καὶ ἐχομένου, ὥσπερ πρᾶξίς τις ἡ κίνησις (ὅταν γὰρ τὸ μὲν ποιῇ τὸ δὲ ποιῆται, ἔστι ποίησις μεταξύ· οὕτω καὶ τοῦ ἔχοντος ἐσθῆτα καὶ τῆς ἐχομένης ἐσθῆτος ἔστι μεταξὺ ἕξις)·—ταύτην μὲν οὖν φανερὸν ὅτι οὐκ ἐνδέχεται ἔχειν ἕξιν (εἰς ἄπειρον γὰρ βαδιεῖται, εἰ τοῦ ἐχομένου ἔσται ἔχειν τὴν ἕξιν), ἄλλον δὲ τρόπον ἕξις λέγεται διάθεσις καθ' ἣν ἢ εὖ ἢ κακῶς διάκειται τὸ διακείμενον,	"Having" (or "state") means, in one sense, a sort of activity of the haver and of what is had, like an action or a motion. (For when one thing makes and another is made, there is a making between them; so too between someone who has a garment and the garment that is had there is a having.) Clearly one cannot have this sort of having, for it would go on to infinity if one could have the having of what

14 "In virtue of which" (*kath' ho*) and "in its own right" (*kath' hauto*) share the same Greek preposition, hence the transition.

GREEK	ENGLISH
καὶ ἢ καθ’ αὑτὸ ἢ πρὸς ἄλλο, οἷον ἡ ὑγίεια ἕξις τις· διάθεσις γάρ ἐστι τοιαύτη. ἔτι ἕξις λέγεται ἂν ᾖ μόριον διαθέσεως τοιαύτης· διὸ καὶ ἡ τῶν μερῶν ἀρετὴ ἕξις τίς ἐστιν.	is had. In another sense, a “state” means a disposition in virtue of which what is disposed is well or badly disposed, either in its own right or in relation to something else: health, for instance, is a state, since it is such a disposition. Further, something is called a state if it is a part of such a disposition; this is why the excellence of the parts is a kind of state.[15]

AFFECTION

An affection is an alterable quality, an alteration, or a misfortune.

GREEK	ENGLISH
πάθος λέγεται ἕνα μὲν τρόπον ποιότης καθ’ ἣν ἀλλοιοῦσθαι ἐνδέχεται, οἷον τὸ λευκὸν καὶ τὸ μέλαν, καὶ γλυκὺ καὶ πικρόν, καὶ βαρύτης καὶ κουφότης, καὶ ὅσα ἄλλα τοιαῦτα· ἕνα δὲ αἱ τούτων ἐνέργειαι καὶ ἀλλοιώσεις ἤδη. ἔτι τούτων μᾶλλον αἱ βλαβεραὶ ἀλλοιώσεις καὶ κινήσεις, καὶ μάλιστα αἱ λυπηραὶ βλάβαι. ἔτι τὰ μεγέθη τῶν συμφορῶν καὶ λυπηρῶν πάθη λέγεται.	“Affection” means, in one sense, a quality in virtue of which a thing can be altered, such as white and black, sweet and bitter, heaviness and lightness, and all others of this kind; in another, the activations of these, the alterations already taking place. Further, among these it means more particularly harmful alterations and motions, and above all painful harms. Further, great misfortunes and distresses are called affections.

PRIVATION

Privation is the lack of something a thing, or its kind, would naturally have.

GREEK	ENGLISH
στέρησις λέγεται ἕνα μὲν τρόπον ἂν μὴ ἔχῃ τι τῶν πεφυκότων ἔχεσθαι, κἂν μὴ αὐτὸ ᾖ πεφυκὸς ἔχειν, οἷον φυτὸν ὀμμάτων ἐστερῆσθαι λέγεται· ἕνα δὲ ἂν πεφυκὸς ἔχειν, ἢ αὐτὸ ἢ τὸ γένος, μὴ ἔχῃ, οἷον ἄλλως ἄνθρωπος ὁ τυφλὸς ὄψεως ἐστέρηται καὶ ἀσπάλαξ, τὸ μὲν κατὰ τὸ γένος τὸ δὲ καθ’ αὑτό. ἔτι ἂν πεφυκὸς καὶ ὅτε πέφυκεν ἔχειν μὴ ἔχῃ· ἡ γὰρ τυφλότης στέρησίς τις, τυφλὸς δ’ οὐ κατὰ πᾶσαν ἡλικίαν, ἀλλ’ ἐν ᾗ πέφυκεν ἔχειν, ἂν μὴ ἔχῃ. ὁμοίως δὲ καὶ ἐν ᾧ ἂν ᾖ ⟨πεφυκὸς⟩ καὶ καθ’ ὃ καὶ πρὸς ὃ καὶ ὅς, ἂν μὴ ἔχῃ [πεφυκός]. ἔτι ἡ βιαία ἑκάστου ἀφαίρεσις στέρησις λέγεται.	“Privation” means, in one sense, a thing’s not having one of the attributes that are naturally had, even if the thing itself would not naturally have it: a plant, for example, is said to be deprived of eyes. In another sense, a thing’s not having something that it, or its genus, would naturally have: a blind man and a mole, for example, are deprived of sight in different ways, the mole with respect to its genus, the man in his own right. Further, a thing’s not having something when it would naturally have it and at the time it would naturally have it: blindness is a privation, but one is not blind at every age, only if one lacks sight at the age at which one would naturally have it. Similarly, a thing is deprived if it does not have something in the respect, in virtue of the thing, in relation to the thing, and in the way in which it would naturally have it. Further, the forcible removal of anything is called privation.

GREEK

καὶ ὁσαχῶς δὲ αἱ ἀπὸ τοῦ ⟨α⟩ ἀποφάσεις λέγονται, τοσαυταχῶς καὶ αἱ στερήσεις λέγονται· ἄνισον μὲν γὰρ τῷ μὴ ἔχειν ἰσότητα πεφυκὸς λέγεται, ἀόρατον δὲ καὶ τῷ ὅλως μὴ ἔχειν χρῶμα καὶ τῷ φαύλως, καὶ ἄπουν καὶ τῷ μὴ ἔχειν ὅλως πόδας καὶ τῷ φαύλους. ἔτι καὶ τῷ μικρὸν ἔχειν, οἷον τὸ ἀπύρηνον· [1023a] τοῦτο δ' ἐστὶ τὸ φαύλως πως ἔχειν. ἔτι τῷ μὴ ῥᾳδίως ἢ τῷ μὴ καλῶς, οἷον τὸ ἄτμητον οὐ μόνον τῷ μὴ τέμνεσθαι ἀλλὰ καὶ τῷ μὴ ῥᾳδίως ἢ μὴ καλῶς. ἔτι τῷ πάντῃ μὴ ἔχειν· τυφλὸς γὰρ οὐ λέγεται ὁ ἑτερόφθαλμος ἀλλ' ὁ ἐν ἀμφοῖν μὴ ἔχων ὄψιν· διὸ οὐ πᾶς ἀγαθὸς ἢ κακός, ἢ δίκαιος ἢ ἄδικος, ἀλλὰ καὶ τὸ μεταξύ.

ENGLISH

And privations have as many senses as there are negations formed with the prefix "un-" or "a-." A thing is called unequal because it does not have the equality it would naturally have; invisible both because it has no color at all and because it has only a poor one; footless both because it has no feet at all and because it has poor ones. Further, something may be so called because it has only a little of something, like a "stoneless" fruit; [1023a] and this is a way of having it poorly. Further, because it is not done easily or not well: "uncuttable," for instance, is said not only of what is not cut but also of what is not cut easily or well. Further, because the thing lacks it entirely: a one-eyed man is not called blind, only one who lacks sight in both eyes. This is why not everyone is good or bad, or just or unjust; there is also the intermediate.[16]

TO HAVE AND TO HOLD

The senses of having: controlling, receiving, containing, and holding together.

GREEK

1023a τὸ ἔχειν λέγεται πολλαχῶς, ἕνα μὲν τρόπον τὸ ἄγειν κατὰ τὴν αὐτοῦ φύσιν ἢ κατὰ τὴν αὐτοῦ ὁρμήν, διὸ λέγεται πυρετός τε ἔχειν τὸν ἄνθρωπον καὶ οἱ τύραννοι τὰς πόλεις καὶ τὴν ἐσθῆτα οἱ ἀμπεχόμενοι· ἕνα δ' ἐν ᾧ ἄν τι ὑπάρχῃ ὡς δεκτικῷ, οἷον ὁ χαλκὸς ἔχει τὸ εἶδος τοῦ ἀνδριάντος καὶ τὴν νόσον τὸ σῶμα· ἕνα δὲ ὡς τὸ περιέχον τὰ περιεχόμενα· ἐν ᾧ γάρ ἐστι περιέχοντι, ἔχεσθαι ὑπὸ τούτου λέγεται, οἷον τὸ ἀγγεῖον ἔχειν τὸ ὑγρόν φαμεν καὶ τὴν πόλιν ἀνθρώπους καὶ τὴν ναῦν ναύτας, οὕτω δὲ καὶ τὸ ὅλον ἔχειν τὰ μέρη.

ἔτι τὸ κωλῦον κατὰ τὴν αὐτοῦ ὁρμήν τι κινεῖσθαι ἢ πράττειν ἔχειν λέγεται τοῦτο αὐτό, οἷον καὶ οἱ κίονες τὰ ἐπικείμενα βάρη, καὶ ὡς οἱ ποιηταὶ τὸν Ἄτλαντα ποιοῦσι τὸν οὐρανὸν ἔχειν ὡς συμπεσόντ' ἂν ἐπὶ τὴν γῆν, ὥσπερ καὶ τῶν φυσιολόγων τινές φασιν· τοῦτον δὲ τὸν τρόπον καὶ τὸ συνέχον λέγεται ἃ συνέχει ἔχειν, ὡς διαχωρισθέντα ἂν κατὰ τὴν αὐτοῦ ὁρμὴν ἕκαστον. καὶ τὸ ἕν τινι δὲ εἶναι ὁμοτρόπως λέγεται καὶ ἑπομένως τῷ ἔχειν.

ENGLISH

"To have" or "to hold" has many senses. In one sense it means to direct something according to one's own nature or impulse; this is why a fever is said to have a person, tyrants to hold their cities, and those who wear clothes to have them on. In another sense, it is said of that in which something is present as in a receptacle: bronze, for instance, has the form of the statue, and the body has the disease. In another sense, as the container holds what it contains; for what something is in as its container is said to be held by it. We say, for instance, that the vessel holds the liquid, the city holds people, and the ship holds sailors; and in this way also the whole holds the parts.

Further, what prevents something from moving or acting according to its own impulse is said to hold it, as pillars hold up the weights placed on them, and as the poets make Atlas hold up the heavens, since otherwise they would fall down upon the earth, as some of the natural philosophers also say. In this way too what holds things together is said to hold what it holds together, since otherwise each would separate according to its own im-

15 *Hexis* ("state") is formed from *echein,* "to have," so Aristotle plays on "having" here.
16 The Greek privative prefix *a-* (as in *a-horatos,* "in-visible") corresponds to English "un-," "in-," or "a-."

	GREEK	ENGLISH
		pulse. And "being in something" is said in similar ways, corresponding to "having."

COMING FROM SOMETHING

Things come from their matter, their mover, their whole, their parts, or what precedes them.

	GREEK	ENGLISH
	τὸ ἔκ τινος εἶναι λέγεται ἕνα μὲν τρόπον ἐξ οὗ ἐστὶν ὡς ὕλης, καὶ τοῦτο διχῶς, ἢ κατὰ τὸ πρῶτον γένος ἢ κατὰ τὸ ὕστατον εἶδος, οἷον ἔστι μὲν ὡς ἅπαντα τὰ τηκτὰ ἐξ ὕδατος, ἔστι δ' ὡς ἐκ χαλκοῦ ὁ ἀνδριάς· ἕνα δ' ὡς ἐκ τῆς πρώτης κινησάσης ἀρχῆς (οἷον ἐκ τίνος ἡ μάχη; ἐκ λοιδορίας, ὅτι αὕτη ἀρχὴ τῆς μάχης)· ἕνα δ' ἐκ τοῦ συνθέτου ἐκ τῆς ὕλης καὶ τῆς μορφῆς, ὥσπερ ἐκ τοῦ ὅλου τὰ μέρη καὶ ἐκ τῆς Ἰλιάδος τὸ ἔπος καὶ ἐκ τῆς οἰκίας οἱ λίθοι· τέλος μὲν γάρ ἐστιν ἡ μορφή, τέλειον δὲ τὸ ἔχον τέλος.	"To be from something" means, in one sense, to be from something as from matter, and this in two ways: either with respect to the first genus or with respect to the last species. In one way, for instance, everything that can be melted is from water; in another, the statue is from bronze. In another sense, it means from the first moving principle: from what, for instance, did the fight arise? From abuse, because this was the starting point of the fight. In another sense, from the composite of matter and shape, as the parts are from the whole, the verse from the *Iliad*, and the stones from the house; for the shape is an end, and what has an end is complete.
	τὰ δὲ ὡς ἐκ τοῦ μέρους τὸ εἶδος, οἷον ἄνθρωπος ἐκ τοῦ δίποδος καὶ ἡ συλλαβὴ ἐκ τοῦ στοιχείου· ἄλλως γὰρ τοῦτο καὶ ὁ ἀνδριὰς ἐκ χαλκοῦ·	Some things are from something as the form is from its part: human being, for instance, from two-footed, and the syllable from the letter. For this is a different sense from the one in which the statue is from bronze;
1023b	1023b ἐκ τῆς αἰσθητῆς γὰρ ὕλης ἡ συνθετὴ οὐσία, ἀλλὰ καὶ τὸ εἶδος ἐκ τῆς τοῦ εἴδους ὕλης. τὰ μὲν οὖν οὕτω λέγεται, τὰ δ' ἐὰν κατὰ μέρος τι τούτων τις ὑπάρχῃ τῶν τρόπων, οἷον ἐκ πατρὸς καὶ μητρὸς τὸ τέκνον καὶ ἐκ γῆς τὰ φυτά, ὅτι ἔκ τινος μέρους αὐτῶν.	1023b the composite substance is from perceptible matter, but the form, too, is from the matter of the form. Some things, then, are so called in these ways; others if one of these senses applies to a part of the thing: the child, for instance, is from father and mother, and plants from the earth, because they come from some part of them.
1023b	ἕνα δὲ μεθ' ὃ τῷ χρόνῳ, οἷον ἐξ ἡμέρας νὺξ καὶ ἐξ εὐδίας χειμών, ὅτι τοῦτο μετὰ τοῦτο· τούτων δὲ τὰ μὲν τῷ ἔχειν μεταβολὴν εἰς ἄλληλα οὕτω λέγεται, ὥσπερ καὶ τὰ νῦν εἰρημένα, τὰ δὲ τῷ κατὰ τὸν χρόνον ἐφεξῆς μόνον, οἷον ἐξ ἰσημερίας ἐγένετο ὁ πλοῦς ὅτι μετ' ἰσημερίαν ἐγένετο, καὶ ἐκ Διονυσίων Θαργήλια ὅτι μετὰ τὰ Διονύσια.	In another sense, it means what comes after something in time, as night comes from day and a storm from fair weather, because the one comes after the other. Of these, some are so called because they change into one another, like those just mentioned; others merely because they are successive in time: the voyage took place "from" the equinox, for instance, because it took place after the equinox, and the Thargelia comes "from" the Dionysia, because it comes after the Dionysia.[17]

17 The Dionysia and Thargelia were Athenian festivals held in spring, the Thargelia about two months after the City Dionysia.

PART

A part is what a quantity, a form, or a whole can be divided into.

GREEK	ENGLISH
μέρος λέγεται ἕνα μὲν τρόπον εἰς ὃ διαιρεθείη ἂν τὸ ποσὸν ὁπωσοῦν (ἀεὶ γὰρ τὸ ἀφαιρούμενον τοῦ ποσοῦ ᾗ ποσὸν μέρος λέγεται ἐκείνου, οἷον τῶν τριῶν τὰ δύο μέρος λέγεταί πως), ἄλλον δὲ τρόπον τὰ καταμετροῦντα τῶν τοιούτων μόνον· διὸ τὰ δύο τῶν τριῶν ἔστι μὲν ὡς λέγεται μέρος, ἔστι δ' ὡς οὔ. ἔτι εἰς ἃ τὸ εἶδος διαιρεθείη ἂν ἄνευ τοῦ ποσοῦ, καὶ ταῦτα μόρια λέγεται τούτου· διὸ τὰ εἴδη τοῦ γένους φασὶν εἶναι μόρια. ἔτι εἰς ἃ διαιρεῖται ἢ ἐξ ὧν σύγκειται τὸ ὅλον, ἢ τὸ εἶδος ἢ τὸ ἔχον τὸ εἶδος, οἷον τῆς σφαίρας τῆς χαλκῆς ἢ τοῦ κύβου τοῦ χαλκοῦ καὶ ὁ χαλκὸς μέρος (τοῦτο δ' ἐστὶν ἡ ὕλη ἐν ᾗ τὸ εἶδος) καὶ ἡ γωνία μέρος.	"Part" means, in one sense, that into which a quantity can be divided in any way whatever; for what is taken away from a quantity, as a quantity, is always called a part of it—two, for instance, is in a sense called a part of three. In another sense, it means only those among such things that measure the whole exactly; which is why two is in one sense called a part of three and in another not. Further, the things into which a form can be divided apart from quantity are also called its parts; this is why species are said to be parts of the genus. Further, the things into which a whole is divided or of which it is composed, whether the whole is the form or what has the form: of a bronze sphere or bronze cube, for instance, both the bronze (that is, the matter in which the form is) and the angle are parts.
ἔτι τὰ ἐν τῷ λόγῳ τῷ δηλοῦντι ἕκαστον, καὶ ταῦτα μόρια τοῦ ὅλου· διὸ τὸ γένος τοῦ εἴδους καὶ μέρος λέγεται, ἄλλως δὲ τὸ εἶδος τοῦ γένους μέρος.	Further, the items in the account that makes each thing clear are also parts of the whole; this is why the genus is called a part of the species, although in another sense the species is part of the genus.

WHOLE AND ALL

A whole lacks none of its parts; position separates a whole from an all.

GREEK	ENGLISH
ὅλον λέγεται οὗ τε μηθὲν ἄπεστι μέρος ἐξ ὧν λέγεται ὅλον φύσει, καὶ τὸ περιέχον τὰ περιεχόμενα ὥστε ἕν τι εἶναι ἐκεῖνα· τοῦτο δὲ διχῶς· ἢ γὰρ ὡς ἕκαστον ἓν ἢ ὡς ἐκ τούτων τὸ ἕν. τὸ μὲν γὰρ καθόλου, καὶ τὸ ὅλως λεγόμενον ὡς ὅλον τι ὄν, οὕτως ἐστὶ καθόλου ὡς πολλὰ περιέχον τῷ κατηγορεῖσθαι καθ' ἑκάστου καὶ ἓν ἅπαντα εἶναι ὡς ἕκαστον, οἷον ἄνθρωπον ἵππον θεόν, διότι ἅπαντα ζῷα· τὸ δὲ συνεχὲς καὶ πεπερασμένον, ὅταν ἕν τι ἐκ πλειόνων ᾖ, ἐνυπαρχόντων μάλιστα μὲν δυνάμει, εἰ δὲ μή, ἐνεργείᾳ. τούτων δ' αὐτῶν μᾶλλον τὰ φύσει ἢ τέχνῃ τοιαῦτα, ὥσπερ καὶ ἐπὶ τοῦ ἑνὸς ἐλέγομεν, ὡς οὔσης τῆς ὁλότητος ἑνότητός τινος.	"Whole" means that from which no part is missing of those from which it is by nature called a whole; and that which contains the things contained in such a way that they are some one thing. This last is so in two ways: either as each of them is one, or as the unity is made of them. For the universal—what is said generally, as being some sort of whole—is universal in the sense that it contains many things by being predicated of each and by all of them being one, each individually, as human being, horse, and god are, since all are animals. The continuous and limited is a whole when it is some one thing made of several constituents, above all when these are present potentially, but if not, then actually. Of these themselves, things of this kind by nature are wholes more than those by craft, as we said in the case of the one too, since wholeness is a kind of oneness.

1024a

GREEK	ENGLISH
ἔτι τοῦ ποσοῦ ἔχοντος δὲ ἀρχὴν καὶ μέσον καὶ ἔσχατον, ὅσων μὲν μὴ ποιεῖ ἡ θέσις διαφοράν, πᾶν λέγεται, ὅσων δὲ ποιεῖ, ὅλον. ὅσα δὲ ἄμφω ἐνδέχεται, καὶ ὅλα καὶ πάντα· ἔστι δὲ ταῦτα ὅσων ἡ μὲν φύσις ἡ αὐτὴ μένει τῇ μεταθέσει, ἡ δὲ μορφὴ οὔ, οἷον κηρὸς καὶ ἱμάτιον· καὶ γὰρ ὅλον καὶ πᾶν λέγεται· ἔχει γὰρ ἄμφω. ὕδωρ δὲ καὶ ὅσα ὑγρὰ καὶ ἀριθμὸς πᾶν μὲν λέγεται, ὅλος δ' ἀριθμὸς καὶ ὅλον ὕδωρ οὐ λέγεται, ἂν μὴ μεταφορᾷ. πάντα δὲ λέγεται ἐφ' οἷς τὸ πᾶν ὡς ἐφ' ἑνί, ἐπὶ τούτοις τὸ πάντα ὡς ἐπὶ διῃρημένοις· πᾶς οὗτος ὁ ἀριθμός, πᾶσαι αὗται αἱ μονάδες.	Further, of quantities that have a beginning, middle, and end, those in which position makes no difference are called "all," and those in which it does, "whole." Those that admit of both are called both wholes and all: these are the things whose nature remains the same when they are rearranged, but whose shape does not, such as wax or a cloak; they are called both whole and all, since they have both characteristics. Water, and liquids generally, and number are called "all," but we do not speak of "the whole number" or "the whole water," except by metaphor. Things of which "all" is said as of one thing have "all" said of them in the plural as of things divided: "all this number," "all these units."[18]

MUTILATED

Only a continuous whole whose parts have position can be mutilated.

GREEK	ENGLISH
κολοβὸν δὲ λέγεται τῶν ποσῶν οὐ τὸ τυχόν, ἀλλὰ μεριστόν τε δεῖ αὐτὸ εἶναι καὶ ὅλον. τά τε γὰρ δύο οὐ κολοβὰ θατέρου ἀφαιρουμένου ἑνός (οὐ γὰρ ἴσον τὸ καλόβωμα καὶ τὸ λοιπὸν οὐδέποτ' ἐστίν) οὐδ' ὅλως ἀριθμὸς οὐδείς· καὶ γὰρ τὴν οὐσίαν δεῖ μένειν· εἰ κύλιξ κολοβός, ἔτι εἶναι κύλικα· ὁ δὲ ἀριθμὸς οὐκέτι ὁ αὐτός. πρὸς δὲ τούτοις κἂν ἀνομοιομερῆ ᾖ, οὐδὲ ταῦτα πάντα (ὁ γὰρ ἀριθμὸς ἔστιν ὡς καὶ ἀνόμοια ἔχει μέρη, οἷον δυάδα τριάδα), ἀλλ' ὅλως ὧν μὴ ποιεῖ ἡ θέσις διαφορὰν οὐδὲν κολοβόν, οἷον ὕδωρ ἢ πῦρ, ἀλλὰ δεῖ τοιαῦτα εἶναι ἃ κατὰ τὴν οὐσίαν θέσιν ἔχει. ἔτι συνεχῆ· ἡ γὰρ ἁρμονία ἐξ ἀνομοίων μὲν καὶ θέσιν ἔχει, κολοβὸς δὲ οὐ γίγνεται.	"Mutilated" is not said of just any quantity: the thing must be divisible into parts and also a whole. Two is not mutilated if one of its two units is taken away (for the part cut off and the remainder are never equal), nor in general is any number. For the substance must also remain: if a cup is mutilated, it must still be a cup; but the number is no longer the same. Besides this, even if things have unlike parts, not all of these can be mutilated either (for a number has, in a way, unlike parts too, such as two and three); but in general nothing in which position makes no difference, such as water or fire, is mutilated. Things must be of such a kind as to have position in virtue of their substance. Further, they must be continuous: a musical scale is made of unlike parts and has position, but it does not become mutilated.
πρὸς δὲ τούτοις οὐδ' ὅσα ὅλα, οὐδὲ ταῦτα ὁτουοῦν μορίου στερήσει κολοβά. οὐ γὰρ δεῖ οὔτε τὰ κύρια τῆς οὐσίας οὔτε τὰ ὁπουοῦν ὄντα· οἷον ἂν τρυπηθῇ ἡ κύλιξ, οὐ κολοβός, ἀλλ' ἂν τὸ οὖς ἢ ἀκρωτήριόν τι, καὶ ὁ ἄνθρωπος οὐκ ἐὰν σάρκα ἢ τὸν σπλῆνα, ἀλλ' ἐὰν ἀκρωτήριόν τι, καὶ τοῦτο οὐ πᾶν ἀλλ' ὃ μὴ ἔχει γένεσιν ἀφαιρεθὲν ὅλον. διὰ τοῦτο οἱ φαλακροὶ οὐ κολοβοί.	Besides this, not even wholes are mutilated by the privation of just any part. The parts removed must be neither those that are governing for the substance nor those located just anywhere. If a cup is pierced, for instance, it is not mutilated, but it is if its handle or some projecting part is removed; and a human being is not mutilated if he loses flesh or his spleen, but if he loses some extremity, and not every extremity, but one that does not grow back

18 Greek *pan* (singular, "all") and *panta* (plural, "all things") are being distinguished here.

GREEK	ENGLISH
	when removed entirely. This is why bald people are not mutilated.

GENUS

A genus is a race, a stock with a first ancestor, or the subject of differentiae.

GREEK	ENGLISH
γένος λέγεται τὸ μὲν ἐὰν ᾖ ἡ γένεσις συνεχὴς τῶν τὸ εἶδος ἐχόντων τὸ αὐτό, οἷον λέγεται ἕως ἂν ἀνθρώπων γένος ᾖ, ὅτι ἕως ἂν ᾖ ἡ γένεσις συνεχὴς αὐτῶν· τὸ δὲ ἀφ' οὗ ἂν ὦσι πρώτου κινήσαντος εἰς τὸ εἶναι· οὕτω γὰρ λέγονται Ἕλληνες τὸ γένος οἱ δὲ Ἴωνες, τῷ οἱ μὲν ἀπὸ Ἕλληνος οἱ δὲ ἀπὸ Ἴωνος εἶναι πρώτου γεννήσαντος· καὶ μᾶλλον οἱ ἀπὸ τοῦ γεννήσαντος ἢ τῆς ὕλης (λέγονται γὰρ καὶ ἀπὸ τοῦ θήλεος τὸ γένος, οἷον οἱ ἀπὸ Πύρρας). 1024b ἔτι δὲ ὡς τὸ ἐπίπεδον τῶν σχημάτων γένος τῶν ἐπιπέδων καὶ τὸ στερεὸν τῶν στερεῶν· ἕκαστον γὰρ τῶν σχημάτων τὸ μὲν ἐπίπεδον τοιονδὶ τὸ δὲ στερεόν ἐστι τοιονδί· τοῦτο δ' ἐστὶ τὸ ὑποκείμενον ταῖς διαφοραῖς.	"Genus" (or "race") is used, in one sense, when there is continuous generation of things that have the same form: for example, "as long as the human race exists" means "as long as their generation is continuous." In another sense, it refers to that from which, as first mover, things derive their being: this is how some are called Hellenes by race and others Ionians, because the ones descend from Hellen and the others from Ion as first begetter. And the term applies more to those descended from the begetter than from the matter, though people are also said to be of a race from the female side, like the descendants of Pyrrha. 1024b Further, it is used as the plane is the genus of plane figures and the solid of solids; for each of the figures is either a plane of such-and-such a kind or a solid of such-and-such a kind, and this is what underlies the differentiae.[19]
1024b ἔτι ὡς ἐν τοῖς λόγοις τὸ πρῶτον ἐνυπάρχον, ὃ λέγεται ἐν τῷ τί ἐστι, τοῦτο γένος, οὗ διαφοραὶ λέγονται αἱ ποιότητες. τὸ μὲν οὖν γένος τοσαυταχῶς λέγεται, τὸ μὲν κατὰ γένεσιν συνεχῆ τοῦ αὐτοῦ εἴδους, τὸ δὲ κατὰ τὸ πρῶτον κινῆσαν ὁμοειδές, τὸ δ' ὡς ὕλη· οὗ γὰρ ἡ διαφορὰ καὶ ἡ ποιότης ἐστί, τοῦτ' ἔστι τὸ ὑποκείμενον, ὃ λέγομεν ὕλην.	Further, in accounts, the first constituent, which is stated in the what-it-is, is the genus, and the qualities are called its differentiae. "Genus," then, is used in this many ways: with respect to continuous generation of the same form; with respect to the first mover of the same form; and as matter. For that of which the differentia and quality are is the underlying subject, which we call matter.
ἕτερα δὲ τῷ γένει λέγεται ὧν ἕτερον τὸ πρῶτον ὑποκείμενον καὶ μὴ ἀναλύεται θάτερον εἰς θάτερον μηδ' ἄμφω εἰς ταὐτόν, οἷον τὸ εἶδος καὶ ἡ ὕλη ἕτερον τῷ γένει, καὶ ὅσα καθ' ἕτερον σχῆμα κατηγορίας τοῦ ὄντος λέγεται (τὰ μὲν γὰρ τί ἐστι σημαίνει τῶν ὄντων τὰ δὲ ποιόν τι τὰ δ' ὡς διῄρηται πρότερον)· οὐδὲ γὰρ ταῦτα ἀναλύεται οὔτ' εἰς ἄλληλα οὔτ' εἰς ἕν τι.	Things are called "other in genus" when their primary underlying subjects are different and neither can be analyzed into the other nor both into the same thing: form and matter, for instance, are other in genus, and so are things said according to a different figure of the categories of being (for some beings signify what a thing is, some a quality, and some the other things distinguished earlier); for these too cannot be analyzed either into each other or into some one thing.

19 Hellen and Ion were legendary ancestors of the Greeks and the Ionians; Pyrrha, wife of Deucalion, was mother of the human race repopulated after the Flood.

FALSE

Things, accounts, and people are false; Antisthenes and the Hippias go wrong about this.

	GREEK	ENGLISH
	τὸ ψεῦδος λέγεται ἄλλον μὲν τρόπον ὡς πρᾶγμα ψεῦδος, καὶ τούτου τὸ μὲν τῷ μὴ συγκεῖσθαι ἢ ἀδύνατον εἶναι συντεθῆναι (ὥσπερ λέγεται τὸ τὴν διάμετρον εἶναι σύμμετρον ἢ τὸ σὲ καθῆσθαι· τούτων γὰρ ψεῦδος τὸ μὲν ἀεὶ τὸ δὲ ποτέ· οὕτω γὰρ οὐκ ὄντα ταῦτά, τὰ δὲ ὅσα ἔστι μὲν ὄντα, πέφυκε μέντοι φαίνεσθαι ἢ μὴ οἷα) ἐστιν ἢ ἃ μὴ ἔστιν (οἷον ἡ σκιαγραφία καὶ τὰ ἐνύπνια· ταῦτα γὰρ ἔστι μέν τι, ἀλλ' οὐχ ὧν ἐμποιεῖ τὴν φαντασίαν)·—πράγματα μὲν οὖν ψευδῆ οὕτω λέγεται, ἢ τῷ μὴ εἶναι αὐτὰ ἢ τῷ τὴν ἀπ' αὐτῶν φαντασίαν μὴ ὄντος εἶναι· λόγος δὲ ψευδὴς ὁ τῶν μὴ ὄντων, ᾗ ψευδής, διὸ πᾶς λόγος ψευδὴς ἑτέρου ἢ οὗ ἐστὶν ἀληθής, οἷον ὁ τοῦ κύκλου ψευδὴς τριγώνου.	"False" is said, in one way, of a thing as false. Of this, one kind is false because it is not combined or cannot be combined (as we say that the diagonal's being commensurable, or your sitting, is false: the first is always false, the second sometimes; for in these senses they are not). Other things exist but are naturally such as to appear either of a kind they are not or things that do not exist (for example, shadow-painting and dreams: these are something, but not the things of which they produce an impression). Things, then, are called false in these ways: either because they themselves do not exist, or because the impression that comes from them is of something that does not exist. A false account, insofar as it is false, is an account of what is not. This is why every account is false of something other than that of which it is true: the account of a circle, for example, is false of a triangle.[20]
	ἑκάστου δὲ λόγος ἔστι μὲν ὡς εἷς, ὁ τοῦ τί ἦν εἶναι, ἔστι δ' ὡς πολλοί, ἐπεὶ ταὐτό πως αὐτὸ καὶ αὐτὸ πεπονθός, οἷον Σωκράτης καὶ Σωκράτης μουσικός (ὁ δὲ ψευδὴς λόγος οὐθενός ἐστιν ἁπλῶς λόγος)· διὸ Ἀντισθένης ᾤετο εὐήθως μηθὲν ἀξιῶν λέγεσθαι πλὴν τῷ οἰκείῳ λόγῳ, ἓν ἐφ' ἑνός· ἐξ ὧν συνέβαινε μὴ εἶναι ἀντιλέγειν, σχεδὸν δὲ μηδὲ ψεύδεσθαι. ἔστι δ' ἕκαστον λέγειν οὐ μόνον τῷ αὐτοῦ λόγῳ ἀλλὰ καὶ τῷ ἑτέρου, ψευδῶς μὲν καὶ παντελῶς, ἔστι δ' ὡς καὶ ἀληθῶς, ὥσπερ τὰ ὀκτὼ διπλάσια τῷ τῆς δυάδος λόγῳ.	Of each thing there is in one sense one account, that of its essence; but in another sense there are many, since the thing itself and the thing with an attribute are in a way the same—Socrates, for example, and musical Socrates. (The false account, taken without qualification, is an account of nothing.) This is why Antisthenes naively thought that nothing could properly be spoken of except by its own proper account, one account for one thing. From which it followed that contradicting was impossible, and, more or less, that saying anything false was impossible too. But each thing can be spoken of not only by its own account but also by that of something else—falsely, and altogether so, but in a way also truly, as eight is double by the account of two.[21]
1025a	τὰ μὲν οὖν οὕτω λέγεται ψευδῆ, ἄνθρωπος δὲ ψευδὴς ὁ εὐχερὴς καὶ προαιρετικὸς τῶν τοιούτων λόγων, μὴ δι' ἕτερόν τι ἀλλὰ δι' αὐτό, καὶ ὁ ἄλλοις ἐμποιητικὸς τῶν τοιούτων λόγων, ὥσπερ καὶ τὰ πράγματά φαμεν ψευδῆ εἶναι ὅσα ἐμποιεῖ φαντασίαν ψευδῆ. διὸ ὁ ἐν τῷ Ἱππίᾳ λόγος παρακρούεται ὡς ὁ αὐτὸς ψευδὴς καὶ ἀληθής. τὸν	Things, then, are called false in these ways. A false person is one who readily and deliberately chooses such accounts, not for the sake of anything else but for their own sake, and one who produces such accounts in others, just as we also say that things are false which produce a false im-

20 "Shadow-painting" (*skiagraphia*) was a painting technique using shading to create an illusion of depth, convincing only from a distance.

21 Antisthenes, a companion of Socrates, held that each thing has only its own proper account.

GREEK

δυνάμενον γὰρ ψεύσασθαι λαμβάνει ψευδῆ (οὗτος δ' ὁ εἰδὼς καὶ ὁ φρόνιμος)· ἔτι τὸν ἑκόντα φαῦλον βελτίω. τοῦτο δὲ ψεῦδος λαμβάνει διὰ τῆς ἐπαγωγῆς—ὁ γὰρ ἑκὼν χωλαίνων τοῦ ἄκοντος κρείττων—τὸ χωλαίνειν τὸ μιμεῖσθαι λέγων, ἐπεὶ εἴ γε χωλὸς ἑκών, χείρων ἴσως, ὥσπερ ἐπὶ τοῦ ἤθους, καὶ οὗτος.

ENGLISH

pression. This is why the argument in the *Hippias* is misleading when it says that the same person is false and true. For it takes the false person to be the one who is able to deceive, that is, the one who knows and understands; and further, it takes the person who is bad willingly to be better. It gets this falsehood by induction—for the person who limps willingly is better than the one who does so unwillingly—meaning by "limping" imitating a limp. For if someone were lame willingly, he would presumably be worse, just as in the case of character.[22]

ACCIDENT

An accident belongs to something neither necessarily nor for the most part.

GREEK

συμβεβηκὸς λέγεται ὃ ὑπάρχει μέν τινι καὶ ἀληθὲς εἰπεῖν, οὐ μέντοι οὔτ' ἐξ ἀνάγκης οὔτε ⟨ὡς⟩ ἐπὶ τὸ πολύ, οἷον εἴ τις ὀρύττων φυτῷ βόθρον εὗρε θησαυρόν. τοῦτο τοίνυν συμβεβηκὸς τῷ ὀρύττοντι τὸν βόθρον, τὸ εὑρεῖν θησαυρόν· οὔτε γὰρ ἐξ ἀνάγκης τοῦτο ἐκ τούτου ἢ μετὰ τοῦτο, οὔθ' ὡς ἐπὶ τὸ πολὺ ἄν τις φυτεύῃ θησαυρὸν εὑρίσκει. καὶ μουσικός γ' ἄν τις εἴη λευκός· ἀλλ' ἐπεὶ οὔτε ἐξ ἀνάγκης οὔθ' ὡς ἐπὶ τὸ πολὺ τοῦτο γίγνεται, συμβεβηκὸς αὐτὸ λέγομεν. ὥστ' ἐπεὶ ἔστιν ὑπάρχον τι καὶ τινί, καὶ ἔνια τούτων καὶ ποὺ καὶ ποτέ, ὅ τι ἂν ὑπάρχῃ μέν, ἀλλὰ μὴ διότι τοδὶ ἦν ἢ νῦν ἢ ἐνταῦθα, συμβεβηκὸς ἔσται. οὐδὲ δὴ αἴτιον ὡρισμένον οὐδὲν τοῦ συμβεβηκότος ἀλλὰ τὸ τυχόν· τοῦτο δ' ἀόριστον.

συνέβη τῳ εἰς Αἴγιναν ἐλθεῖν, εἰ μὴ διὰ τοῦτο ἀφίκετο ὅπως ἐκεῖ ἔλθῃ, ἀλλ' ὑπὸ χειμῶνος ἐξωσθεὶς ἢ ὑπὸ λῃστῶν ληφθείς. γέγονε μὲν δὴ ἢ ἔστι τὸ συμβεβηκός, ἀλλ' οὐχ ᾗ αὐτὸ ἀλλ' ᾗ ἕτερον· ὁ γὰρ χειμὼν αἴτιος τοῦ μὴ ὅπου ἔπλει ἐλθεῖν, τοῦτο δ' ἦν Αἴγινα. λέγεται δὲ καὶ ἄλλως συμβεβηκός, οἷον ὅσα ὑπάρχει ἑκάστῳ καθ' αὑτὸ μὴ ἐν τῇ οὐσίᾳ ὄντα, οἷον τῷ τριγώνῳ τὸ δύο ὀρθὰς ἔχειν. καὶ ταῦτα μὲν ἐνδέχεται ἀΐδια εἶναι, ἐκείνων δὲ οὐδέν. λόγος δὲ τούτου ἐν ἑτέροις.

ENGLISH

"Accident" means what belongs to something and is true to say of it, but neither necessarily nor for the most part: if, for instance, someone digging a hole for a plant finds treasure. This, then, finding treasure, is an accident for the one digging the hole; for the one does not come necessarily from the other or after it, nor does someone who plants a tree find treasure for the most part. And a musical person might be pale; but since this happens neither necessarily nor for the most part, we call it an accident. So, since there are things that belong, and they belong to something, and some of them belong at a certain place and time, whatever belongs to something, but not because it was this thing or it was now or here, will be an accident. Nor, then, is there any definite cause of an accident, but only a chance one, and this is indefinite.

It was an accident for someone to go to Aegina, if he arrived there not in order to get there but because he was driven off course by a storm or captured by pirates. The accident has come about or exists, then, but not as itself, only as something else; for the storm was the cause of his coming where he was not sailing to, and that was Aegina. "Accident" is also used in another way: of whatever belongs to each thing in its own right without being in its substance, as having angles equal to two right angles belongs to the triangle. And accidents of this kind can be eternal, whereas

22 Plato's dialogue *Hippias Minor* argues that the liar and the truthful person are the same, and that one who does wrong willingly is better than one who does it unwillingly.

GREEK	ENGLISH
	none of the others can. The account of this is given elsewhere.[23]

23 Aegina is an island in the Saronic Gulf, near Athens.

Book Epsilon (VI)

The divisions of theoretical science; accidental being.

CHAPTER 1

GREEK

1025b αἱ ἀρχαὶ καὶ τὰ αἴτια ζητεῖται τῶν ὄντων, δῆλον δὲ ὅτι ᾗ ὄντα. ἔστι γάρ τι αἴτιον ὑγιείας καὶ εὐεξίας, καὶ τῶν μαθηματικῶν εἰσὶν ἀρχαὶ καὶ στοιχεῖα καὶ αἴτια, καὶ ὅλως δὲ πᾶσα ἐπιστήμη διανοητικὴ ἢ μετέχουσά τι διανοίας περὶ αἰτίας καὶ ἀρχάς ἐστιν ἢ ἀκριβεστέρας ἢ ἁπλουστέρας.

ἀλλὰ πᾶσαι αὗται περὶ ὄν τι καὶ γένος τι περιγραψάμεναι περὶ τούτου πραγματεύονται, ἀλλ' οὐχὶ περὶ ὄντος ἁπλῶς οὐδὲ ᾗ ὄν, οὐδὲ τοῦ τί ἐστιν οὐθένα λόγον ποιοῦνται, ἀλλ' ἐκ τούτου, αἱ μὲν αἰσθήσει ποιήσασαι αὐτὸ δῆλον αἱ δ' ὑπόθεσιν λαβοῦσαι τὸ τί ἐστιν, οὕτω τὰ καθ' αὑτὰ ὑπάρχοντα τῷ γένει περὶ ὅ εἰσιν ἀποδεικνύουσιν ἢ ἀναγκαιότερον ἢ μαλακώτερον· διόπερ φανερὸν ὅτι οὐκ ἔστιν ἀπόδειξις οὐσίας οὐδὲ τοῦ τί ἐστιν ἐκ τῆς τοιαύτης ἐπαγωγῆς, ἀλλά τις ἄλλος τρόπος τῆς δηλώσεως.

ὁμοίως δὲ οὐδ' εἰ ἔστιν ἢ μὴ ἔστι τὸ γένος περὶ ὃ πραγματεύονται οὐδὲν λέγουσι, διὰ τὸ τῆς αὐτῆς εἶναι διανοίας τό τε τί ἐστι δῆλον ποιεῖν καὶ εἰ ἔστιν.—ἐπεὶ δὲ καὶ ἡ φυσικὴ ἐπιστήμη τυγχάνει οὖσα περὶ γένος τι τοῦ ὄντος (περὶ γὰρ τὴν τοιαύτην ἐστὶν οὐσίαν ἐν ᾗ ἡ ἀρχὴ τῆς κινήσεως καὶ στάσεως ἐν αὐτῇ, δῆλον ὅτι οὔτε πρακτικὴ ἐστιν οὔτε ποιητική (τῶν μὲν γὰρ ποιητῶν ἐν τῷ ποιοῦντι ἡ ἀρχή, ἢ νοῦς ἢ τέχνη ἢ δύναμίς τις, τῶν δὲ πρακτῶν ἐν τῷ πράττοντι, ἡ προαίρεσις· τὸ αὐτὸ γὰρ τὸ πρακτὸν καὶ προαιρετόν), ὥστε εἰ πᾶσα διάνοια ἢ πρακτικὴ ἢ ποιητικὴ ἢ θεωρητική, ἡ φυσικὴ θεωρητική τις ἂν εἴη, ἀλλὰ θεωρητικὴ περὶ τοιοῦτον ὂν ὅ ἐστι δυνατὸν κινεῖσθαι, καὶ περὶ οὐσίαν τὴν κατὰ τὸν λόγον ὡς ἐπὶ τὸ πολὺ ὡς οὐ χωριστὴν μόνον.

ENGLISH

We are seeking the principles and causes of the things that are, and clearly of them as things that are. For there is a cause of health and of fitness, and there are principles and elements and causes of mathematical objects, and in general every science that involves thinking, or has some share in thinking, deals with causes and principles, whether more precise or simpler ones.

But all these sciences mark off some particular being, some genus, and busy themselves with that, not with being without qualification, nor as being. Nor do they give any account of the what-it-is; rather, starting from it—some making it clear by perception, others taking the what-it-is as a hypothesis—they go on to demonstrate, more rigorously or more loosely, the attributes that belong in their own right to the genus they deal with. It is clear, then, that from such an induction there is no demonstration of substance or of the what-it-is, but some other way of making it clear.

Similarly, they say nothing about whether the genus they deal with exists or does not, since it belongs to the same kind of thinking to make clear both what it is and whether it is. Now natural science, too, happens to deal with one genus of being: it deals with the kind of substance that has the principle of motion and rest in itself. So it is clear that it is neither practical nor productive. (For in things produced the principle is in the producer—intellect or craft or some capacity—and in things done it is in the doer, namely decision; for what is done and what is decided on are the same.) So if all thinking is either practical or productive or theoretical, natural science would be a theoretical science, but theoretical about the kind of being that is capable of being moved, and about substance in the sense of the account only as, for the most part, not separable.

GREEK

δεῖ δὲ τὸ τί ἦν εἶναι καὶ τὸν λόγον πῶς ἐστὶ μὴ λανθάνειν, ὡς ἄνευ γε τούτου τὸ ζητεῖν μηδέν ἐστι ποιεῖν. ἔστι δὲ τῶν ὁριζομένων καὶ τῶν τί ἐστι τὰ μὲν ὡς τὸ σιμὸν τὰ δ' ὡς τὸ κοῖλον. διαφέρει δὲ ταῦτα ὅτι τὸ μὲν σιμὸν συνειλημμένον ἐστὶ μετὰ τῆς ὕλης (ἔστι γὰρ τὸ σιμὸν κοίλη ῥίς), ἡ δὲ κοιλότης ἄνευ ὕλης αἰσθητῆς. [1026a] εἰ δὴ πάντα τὰ φυσικὰ ὁμοίως τῷ σιμῷ λέγονται, οἷον ῥὶς ὀφθαλμὸς πρόσωπον σὰρξ ὀστοῦν, ὅλως ζῷον, φύλλον ῥίζα φλοιός, ὅλως φυτόν (οὐθενὸς γὰρ ἄνευ κινήσεως ὁ λόγος αὐτῶν, ἀλλ' ἀεὶ ἔχει ὕλην), δῆλον πῶς δεῖ ἐν τοῖς φυσικοῖς τὸ τί ἐστι ζητεῖν καὶ ὁρίζεσθαι, καὶ διότι καὶ περὶ ψυχῆς ἐνίας θεωρῆσαι τοῦ φυσικοῦ, ὅση μὴ ἄνευ τῆς ὕλης ἐστίν.

ENGLISH

But we must not overlook how the essence and the account are, since without this, inquiry accomplishes nothing. Of things defined, of things that are what they are, some are like the snub and some like the concave. They differ in that the snub is taken together with matter (for the snub is a concave nose), whereas concavity is without perceptible matter. [1026a] Now if all natural things are spoken of like the snub—nose, eye, face, flesh, bone, animal in general, leaf, root, bark, plant in general (for the account of none of these is without motion; it always includes matter)—then it is clear how we should seek and define the what-it-is in natural things, and why it belongs to the natural scientist to study even some of the soul, so much of it as is not without matter.

1026a ὅτι μὲν οὖν ἡ φυσικὴ θεωρητική ἐστι, φανερὸν ἐκ τούτων· ἀλλ' ἔστι καὶ ἡ μαθηματικὴ θεωρητική· ἀλλ' εἰ ἀκινήτων καὶ χωριστῶν ἐστί, νῦν ἄδηλον, ὅτι μέντοι ἔνια μαθήματα ᾗ ἀκίνητα καὶ ᾗ χωριστὰ θεωρεῖ, δῆλον. εἰ δέ τί ἐστιν ἀΐδιον καὶ ἀκίνητον καὶ χωριστόν, φανερὸν ὅτι θεωρητικῆς τὸ γνῶναι, οὐ μέντοι φυσικῆς γε (περὶ κινητῶν γάρ τινων ἡ φυσικῆ οὐδὲ μαθηματικῆς, ἀλλὰ προτέρας ἀμφοῖν. ἡ μὲν γὰρ φυσικὴ περὶ χωριστὰ μὲν ἀλλ' οὐκ ἀκίνητα, τῆς δὲ μαθηματικῆς ἔνια περὶ ἀκίνητα μὲν οὐ χωριστὰ δὲ ἴσως ἀλλ' ὡς ἐν ὕλῃ· ἡ δὲ πρώτη καὶ περὶ χωριστὰ καὶ ἀκίνητα. ἀνάγκη δὲ πάντα μὲν τὰ αἴτια ἀΐδια εἶναι, μάλιστα δὲ ταῦτα· ταῦτα γὰρ αἴτια τοῖς φανεροῖς τῶν θείων.

From this it is evident that natural science is theoretical. But mathematics too is theoretical. Whether it deals with things that are unmoving and separate is at present unclear; but it is clear that some branches of mathematics study their objects insofar as they are unmoving and insofar as they are separate. If there is something eternal and unmoving and separate, it is evident that knowing it belongs to a theoretical science—not, however, to natural science (for natural science deals with certain things that move), nor to mathematics, but to a science prior to both. For natural science deals with things that are separate but not unmoving, and some branches of mathematics with things that are unmoving but presumably not separate, but as in matter; but the first science deals with things that are both separate and unmoving. All causes must be eternal, but these most of all; for they are the causes of the divine things that are manifest to us.[1]

ὥστε τρεῖς ἂν εἶεν φιλοσοφίαι θεωρητικαί, μαθηματική, φυσική, θεολογική (οὐ γὰρ ἄδηλον ὅτι εἴ που τὸ θεῖον ὑπάρχει, ἐν τῇ τοιαύτῃ φύσει ὑπάρχει, καὶ τὴν τιμιωτάτην δεῖ περὶ τὸ τιμιώτατον γένος εἶναι. αἱ μὲν οὖν θεωρητικαὶ τῶν ἄλλων ἐπιστημῶν αἱρετώταται, αὕτη δὲ τῶν θεωρητικῶν.

So there would be three theoretical philosophies: mathematics, natural science, and theology. (For it is quite clear that if the divine is present anywhere, it is present in this sort of nature.) And the most honorable science must deal with the most honorable genus. The theoretical sciences, then, are more choiceworthy than the others, and this one more than the other theoretical sciences.

ἀπορήσειε γὰρ ἄν τις πότερόν ποθ' ἡ πρώτη φιλοσοφία καθόλου ἐστὶν ἢ περί τι γένος καὶ φύσιν τινὰ μίαν (οὐ γὰρ ὁ αὐτὸς τρόπος οὐδ' ἐν ταῖς μαθηματικαῖς, ἀλλ' ἡ μὲν

For one might raise the puzzle whether first philosophy is universal, or deals with one particular genus and one nature. (For it is not the same even

1 "The divine things that are manifest" are probably the heavenly bodies.

GREEK	ENGLISH
γεωμετρία καὶ ἀστρολογία περί τινα φύσιν εἰσίν, ἡ δὲ καθόλου πασῶν κοινὴ· εἰ μὲν οὖν μὴ ἔστι τις ἑτέρα οὐσία παρὰ τὰς φύσει συνεστηκυίας, ἡ φυσικὴ ἂν εἴη πρώτη ἐπιστήμη· εἰ δ' ἔστι τις οὐσία ἀκίνητος, αὕτη προτέρα καὶ φιλοσοφία πρώτη, καὶ καθόλου οὕτως ὅτι πρώτη· καὶ περὶ τοῦ ὄντος ᾗ ὂν ταύτης ἂν εἴη θεωρῆσαι, καὶ τί ἐστι καὶ τὰ ὑπάρχοντα ᾗ ὄν.	in the mathematical sciences: geometry and astronomy deal with a particular nature, while universal mathematics is common to all.) If, then, there is no other substance besides those constituted by nature, natural science would be the first science; but if there is some unmoving substance, the science of this is prior and is first philosophy, and it is universal in this way, because it is first. And it would belong to this science to study being as being, both what it is and the attributes that belong to it as being.

NO SCIENCE OF ACCIDENTAL BEING

Accidental being has no science, because it is neither always nor for the most part.

GREEK	ENGLISH
ἀλλ' ἐπεὶ τὸ ὂν τὸ ἁπλῶς λεγόμενον λέγεται πολλαχῶς, ὧν ἓν μὲν ἦν τὸ κατὰ συμβεβηκός, ἕτερον δὲ τὸ ὡς ἀληθές, καὶ τὸ μὴ ὂν ὡς τὸ ψεῦδος, παρὰ ταῦτα δ' ἐστὶ τὰ σχήματα τῆς κατηγορίας (οἷον τὸ μὲν τί, τὸ δὲ ποιόν, τὸ δὲ ποσόν, τὸ δὲ πού, τὸ δὲ ποτέ, καὶ εἴ τι ἄλλο σημαίνει τὸν τρόπον τοῦτον), [1026b] ἔτι παρὰ ταῦτα πάντα τὸ δυνάμει καὶ ἐνεργείᾳ·—ἐπεὶ δὴ πολλαχῶς λέγεται τὸ ὄν, πρῶτον περὶ τοῦ κατὰ συμβεβηκὸς λεκτέον, ὅτι οὐδεμία ἐστὶ περὶ αὐτὸ θεωρία. σημεῖον δέ· οὐδεμιᾷ γὰρ ἐπιστήμῃ ἐπιμελὲς περὶ αὐτοῦ οὔτε πρακτικῇ οὔτε ποιητικῇ οὔτε θεωρητικῇ.	But being, said without qualification, is said in many ways. One of these, as we saw, was accidental being, another being as the true (and not-being as the false); besides these there are the figures of the categories (the what, quality, quantity, where, when, and anything else that signifies in this way); [1026b] and further, besides all these, there is being potentially and actually. Since being is said in many ways, then, we must first say about accidental being that there is no study of it. A sign of this is that no science concerns itself with it—not practical, productive, or theoretical.
1026b οὔτε γὰρ ὁ ποιῶν οἰκίαν ποιεῖ ὅσα συμβαίνει ἅμα τῇ οἰκίᾳ γιγνομένῃ (ἄπειρα γάρ ἐστιν· τοῖς μὲν γὰρ ἡδεῖαν τοῖς δὲ βλαβερὰν τοῖς δ' ὠφέλιμον οὐθὲν εἶναι κωλύει τὴν ποιηθεῖσαν, καὶ ἑτέραν ὡς εἰπεῖν πάντων τῶν ὄντων· ὧν οὐθενός ἐστιν ἡ οἰκοδομικὴ ποιητική, τὸν αὐτὸν δὲ τρόπον οὐδ' ὁ γεωμέτρης θεωρεῖ τὰ οὕτω συμβεβηκότα τοῖς σχήμασιν, οὐδ' εἰ ἕτερόν ἐστι τρίγωνον καὶ τρίγωνον δύο ὀρθὰς ἔχον. καὶ τοῦτ' εὐλόγως συμπίπτει· ὥσπερ γὰρ ὄνομά τι μόνον τὸ συμβεβηκός ἐστιν. διὸ Πλάτων τρόπον τινὰ οὐ κακῶς τὴν σοφιστικὴν περὶ τὸ μὴ ὂν ἔταξεν.	For the one who makes a house does not make all the things that happen to go along with the house as it comes to be (they are unlimited: nothing prevents the house once made from being pleasant for some people, harmful to others, and beneficial to others, and different, so to speak, from all the things that exist; and the craft of building produces none of these). In the same way the geometer does not study the attributes that belong accidentally to figures in this way, nor whether a triangle is different from a triangle whose angles equal two right angles. And this happens reasonably enough, for the accidental is, as it were, a mere name. This is why Plato was in a way not wrong to assign sophistry to the domain of not-being.[2]
εἰσὶ γὰρ οἱ τῶν σοφιστῶν λόγοι περὶ τὸ συμβεβηκὸς ὡς εἰπεῖν μάλιστα πάντων, πότερον ἕτερον ἢ ταὐτὸν μουσικὸν καὶ γραμματικόν, καὶ μουσικὸς Κορίσκος καὶ	For the arguments of the sophists deal, one might say, with the accidental more than anything else: whether the musical and the literate are different

2 The reference is to Plato's *Sophist*, where the sophist is located in the realm of not-being and falsehood.

GREEK

Κορίσκος, καὶ εἰ πᾶν ὃ ἂν ᾖ, μὴ ἀεὶ δέ, γέγονεν, ὥστ' εἰ μουσικὸς ὢν γραμματικὸς γέγονε, καὶ γραμματικὸς ὢν μουσικός, καὶ ὅσοι δὴ ἄλλοι τοιοῦτοι τῶν λόγων εἰσίν· φαίνεται γὰρ τὸ συμβεβηκὸς ἐγγύς τι τοῦ μὴ ὄντος. δῆλον δὲ καὶ ἐκ τῶν τοιούτων λόγων· τῶν μὲν γὰρ ἄλλον τρόπον ὄντων ἔστι γένεσις καὶ φθορά, τῶν δὲ κατὰ συμβεβηκὸς οὐκ ἔστιν.

ἀλλ' ὅμως λεκτέον ἔτι περὶ τοῦ συμβεβηκότος ἐφ' ὅσον ἐνδέχεται, τίς ἡ φύσις αὐτοῦ καὶ διὰ τίν' αἰτίαν ἔστιν· ἅμα γὰρ δῆλον ἴσως ἔσται καὶ διὰ τί ἐπιστήμη οὐκ ἔστιν αὐτοῦ.—ἐπεὶ οὖν ἐστὶν ἐν τοῖς οὖσι τὰ μὲν ἀεὶ ὡσαύτως ἔχοντα καὶ ἐξ ἀνάγκης, οὐ τῆς κατὰ τὸ βίαιον λεγομένης ἀλλ' ἣν λέγομεν τῷ μὴ ἐνδέχεσθαι ἄλλως, τὰ δ' ἐξ ἀνάγκης μὲν οὐκ ἔστιν οὐδ' ἀεί, ὡς δ' ἐπὶ τὸ πολύ, αὕτη ἀρχὴ καὶ αὕτη αἰτία ἐστὶ τοῦ εἶναι τὸ συμβεβηκός· ὃ γὰρ ἂν ᾖ μήτ' ἀεὶ μήθ' ὡς ἐπὶ τὸ πολύ, τοῦτό φαμεν συμβεβηκὸς εἶναι. οἷον ἐπὶ κυνὶ ἂν χειμὼν γένηται καὶ ψῦχος, τοῦτο συμβῆναί φαμεν, ἀλλ' οὐκ ἂν πνῖγος καὶ ἀλέα, ὅτι τὸ μὲν ἀεὶ ἢ ὡς ἐπὶ τὸ πολὺ τὸ δ' οὔ.

καὶ τὸν ἄνθρωπον λευκὸν εἶναι συμβέβηκεν (οὔτε γὰρ ἀεὶ οὔθ' ὡς ἐπὶ τὸ πολύ, ζῷον δ' οὐ κατὰ συμβεβηκός. καὶ τὸ ὑγιάζειν δὲ τὸν οἰκοδόμον συμβεβηκός, 1027a ὅτι οὐ πέφυκε τοῦτο ποιεῖν οἰκοδόμος ἀλλὰ ἰατρός, ἀλλὰ συνέβη ἰατρὸν εἶναι τὸν οἰκοδόμον. καὶ ὀψοποιὸς ἡδονῆς στοχαζόμενος ποιήσειεν ἄν τι ὑγιεινόν, ἀλλ' οὐ κατὰ τὴν ὀψοποιητικήν· διὸ συνέβη, φαμέν, καὶ ἔστιν ὡς ποιεῖ, ἁπλῶς δ' οὔ. τῶν μὲν γὰρ ἄλλων [ἐνίοτε] δυνάμεις εἰσὶν αἱ ποιητικαί, τῶν δ' οὐδεμία τέχνη οὐδὲ δύναμις ὡρισμένη· τῶν γὰρ κατὰ συμβεβηκὸς ὄντων ἡ γιγνομένων καὶ τὸ αἴτιόν ἐστι κατὰ συμβεβηκός.

1027a ὥστ' ἐπεὶ οὐ πάντα ἐστὶν ἐξ ἀνάγκης καὶ ἀεὶ ἢ ὄντα ἢ γιγνόμενα, ἀλλὰ τὰ πλεῖστα ὡς ἐπὶ τὸ πολύ, ἀνάγκη εἶναι τὸ κατὰ συμβεβηκὸς ὄν· οἷον οὔτ' ἀεὶ οὔθ' ὡς ἐπὶ τὸ πολὺ ὁ λευκὸς μουσικός ἐστιν, ἐπεὶ δὲ γίγνεταί ποτε, κατὰ συμβεβηκὸς ἔσται (εἰ δὲ μή, πάντ' ἔσται ἐξ ἀνάγκης)· ὥστε

ENGLISH

or the same, and musical Coriscus and Coriscus; and whether everything that is, but is not always, has come to be, so that if someone who is musical has become literate, he has also, being literate, become musical; and all the other arguments of this sort. For the accidental appears to be something close to not-being. This is clear from arguments like the following: of things that are in the other senses there is coming-to-be and passing away, but of things that are accidentally there is not.

Still, we must say something more about the accidental, as far as possible: what its nature is and through what cause it exists. At the same time it will perhaps become clear why there is no science of it. Among the things that are, some are always in the same state and of necessity—not necessity in the sense of force, but the necessity we speak of when something cannot be otherwise—while others are neither of necessity nor always, but for the most part. This is the principle and this the cause of there being the accidental. For whatever is neither always nor for the most part, that we call accidental. If there is wintry, cold weather in the dog days, for instance, we say this is an accident, but not if there is stifling heat, because the latter is so always or for the most part, and the former is not.[3]

And it is an accident that a human being is pale (for this is neither always nor for the most part), but not an accident that he is an animal. It is an accident, too, that the builder produces health, 1027a because it is not the builder's nature to do this but the doctor's; it just happened that the builder was a doctor. And a cook aiming at pleasure might produce something healthy, but not by virtue of the craft of cooking. This is why we say it happened incidentally: in a way he produces it, but not without qualification. For of other things there are capacities that produce them, but of accidents there is no definite craft or capacity; for the cause of things that are or come to be accidentally is itself accidental.

So, since not all things are or come to be of necessity and always, but most things are for the most part, there must be accidental being. A pale person, for example, is not musical always or for the most part; but since this sometimes happens, it

3 The "dog days" are the hottest part of summer, named after the rising of the Dog Star, Sirius.

GREEK

ἡ ὕλη ἔσται αἰτία ἡ ἐνδεχομένη παρὰ τὸ ὡς ἐπὶ τὸ πολὺ ἄλλως τοῦ συμβεβηκότος. ἀρχὴν δὲ τηνδὶ ληπτέον, πότερον οὐδέν ἐστιν οὔτ' αἰεὶ οὔθ' ὡς ἐπὶ τὸ πολύ. ἢ τοῦτο ἀδύνατον; ἔστιν ἄρα τι παρὰ ταῦτα τὸ ὁπότερ' ἔτυχε καὶ κατὰ συμβεβηκός. ἀλλὰ πότερον τὸ ὡς ἐπὶ τὸ πολύ, τὸ δ' ἀεὶ οὐθενὶ ὑπάρχει, ἢ ἔστιν ἄττα ἀΐδια;

περὶ μὲν οὖν τούτων ὕστερον σκεπτέον, ὅτι δ' ἐπιστήμη οὐκ ἔστι τοῦ συμβεβηκότος φανερόν· ἐπιστήμη μὲν γὰρ πᾶσα ἢ τοῦ ἀεὶ ἢ τοῦ ὡς ἐπὶ τὸ πολύ—πῶς γὰρ ἢ μαθήσεται ἢ διδάξει ἄλλον; δεῖ γὰρ ὡρίσθαι ἢ τῷ ἀεὶ ἢ τῷ ὡς ἐπὶ τὸ πολύ, οἷον ὅτι ὠφέλιμον τὸ μελίκρατον τῷ πυρέττοντι ὡς ἐπὶ τὸ πολύ—τὸ δὲ παρὰ τοῦτο οὐχ ἕξει λέγειν, πότε οὔ, οἷον νουμηνίᾳ· ἢ γὰρ ἀεὶ ἢ ὡς ἐπὶ τὸ πολὺ καὶ τὸ τῇ νουμηνίᾳ· τὸ δὲ συμβεβηκός ἐστι παρὰ ταῦτα. τί μὲν οὖν ἐστὶ τὸ συμβεβηκὸς καὶ διὰ τίν' αἰτίαν καὶ ὅτι ἐπιστήμη οὐκ ἔστιν αὐτοῦ, εἴρηται.

ENGLISH

will be accidental (otherwise everything would be of necessity). So the cause of the accidental will be matter, which is capable of being otherwise than it usually is. We must take this as our starting point: is there nothing that is neither always nor for the most part? Or is this impossible? There is, then, besides these, what happens either way by chance, and accidentally. But is there only what is for the most part, and nothing that is always? Or are there some eternal things?

These questions must be examined later. But that there is no science of the accidental is evident. For all science is either of what is always or of what is for the most part—how else will one learn it or teach it to another? It must be defined by "always" or by "for the most part": that honey-water is beneficial to someone with a fever for the most part, for example. But it will not be able to state the exception, when it is not beneficial—at the new moon, say—since even what happens at the new moon happens either always or for the most part; and the accidental is contrary to these. What the accidental is, then, and through what cause, and that there is no science of it, has been stated.

NOT EVERYTHING HAPPENS OF NECESSITY

Causal chains trace back to a starting point that simply comes about.

GREEK

ὅτι δ' εἰσὶν ἀρχαὶ καὶ αἴτια γενητὰ καὶ φθαρτὰ ἄνευ τοῦ γίγνεσθαι καὶ φθείρεσθαι, φανερόν. εἰ γὰρ μὴ τοῦτ', ἐξ ἀνάγκης πάντ' ἔσται, εἰ τοῦ γιγνομένου καὶ φθειρομένου μὴ κατὰ συμβεβηκὸς αἴτιόν τι ἀνάγκη εἶναι. πότερον γὰρ ἔσται τοδὶ ἢ οὔ; ἐάν γε τοδὶ γένηται· εἰ δὲ μή, οὔ. τοῦτο δὲ ἐὰν ἄλλο. καὶ οὕτω δῆλον ὅτι ἀεὶ χρόνου ἀφαιρουμένου ἀπὸ πεπερασμένου χρόνου ἥξει ἐπὶ τὸ νῦν, [1027b] ὥστε ὁδὶ ἀποθανεῖται [νόσῳ ἢ] βίᾳ, ἐάν γε ἐξέλθῃ· τοῦτο δὲ ἐὰν διψήσῃ· τοῦτο δὲ ἐὰν ἄλλο· καὶ οὕτως ἥξει εἰς ὃ νῦν ὑπάρχει, ἢ εἰς τῶν γεγονότων τι. οἷον ἐὰν διψήσῃ· τοῦτο δὲ εἰ ἐσθίει δριμέα· τοῦτο δ' ἤτοι ὑπάρχει ἢ οὔ· ὥστ' ἐξ ἀνάγκης ἀποθανεῖται ἢ οὐκ ἀποθανεῖται.

ENGLISH

That there are principles and causes that are generable and destructible without being in the process of coming to be and being destroyed is evident. For if this were not so, everything would be of necessity, since there must be some cause, and not an accidental one, of what comes to be and is destroyed. Will this be or not? It will if this other thing happens, and if not, not; and that other thing will happen if something else does. And in this way it is clear that, as time is continually subtracted from a limited time, we will arrive at the present. [1027b] So this man will die by violence, if he goes out; and he will go out if he gets thirsty; and he will get thirsty if something else happens. And in this way we will arrive at what is present now, or at something that has already happened. For example, he will go out if he gets thirsty; and this will happen if he is eating spicy food; and this is either the case or not. So of necessity he will die, or of necessity he will not.

GREEK		ENGLISH
1027b	ὁμοίως δὲ κἂν ὑπερπηδήσῃ τις εἰς τὰ γενόμενα, ὁ αὐτὸς λόγος· ἤδη γὰρ ὑπάρχει τοῦτο ἔν τινι, λέγω δὲ τὸ γεγονός· ἐξ ἀνάγκης ἄρα πάντα ἔσται τὰ ἐσόμενα, οἷον τὸ ἀποθανεῖν τὸν ζῶντα· ἤδη γάρ τι γέγονεν, οἷον τὰ ἐναντία ἐν τῷ αὐτῷ. ἀλλ' εἰ νόσῳ ἢ βίᾳ, οὔπω, ἀλλ' ἐὰν τοδὶ γένηται. δῆλον ἄρα ὅτι μέχρι τινὸς βαδίζει ἀρχῆς, αὕτη δ' οὐκέτι εἰς ἄλλο. ἔσται οὖν ἡ τοῦ ὁπότερ' ἔτυχεν αὕτη, καὶ αἴτιον τῆς γενέσεως αὐτῆς ἄλλο οὐθέν. ἀλλ' εἰς ἀρχὴν ποίαν καὶ αἴτιον ποῖον ἡ ἀναγωγὴ ἡ τοιαύτη, πότερον ὡς εἰς ὕλην ἢ ὡς εἰς τὸ οὗ ἕνεκα ἢ ὡς εἰς τὸ κινῆσαν, μάλιστα σκεπτέον.	And similarly if one jumps back to past events, the argument is the same; for this—I mean what has happened—is already present in something. So everything that is going to be will be of necessity: that the living will die, for example, since something has already happened, such as the presence of contraries in the same body. But whether it will be by disease or by violence is not yet settled, but only if this thing happens. It is clear, then, that the series goes back to a certain starting point, but this no longer goes back to anything else. This, then, will be the starting point of what happens either way by chance, and nothing else is the cause of its coming to be. But to what sort of principle and what sort of cause this tracing back leads—whether to matter, or to that for the sake of which, or to what produced the motion—must be carefully examined.

BEING AS TRUTH

Truth and falsity lie in thought, not in things, and are set aside.

GREEK	ENGLISH
περὶ μὲν οὖν τοῦ κατὰ συμβεβηκὸς ὄντος ἀφείσθω (διώρισται γὰρ ἱκανῶς)· τὸ δὲ ὡς ἀληθὲς ὄν, καὶ μὴ ὂν ὡς ψεῦδος, ἐπειδὴ παρὰ σύνθεσίν ἐστι καὶ διαίρεσιν, τὸ δὲ σύνολον περὶ μερισμὸν ἀντιφάσεως (τὸ μὲν γὰρ ἀληθὲς τὴν κατάφασιν ἐπὶ τῷ συγκειμένῳ ἔχει τὴν δ' ἀπόφασιν ἐπὶ τῷ διῃρημένῳ, τὸ δὲ ψεῦδος τούτου τοῦ μερισμοῦ τὴν ἀντίφασιν· πῶς δὲ τὸ ἅμα ἢ τὸ χωρὶς νοεῖν συμβαίνει, ἄλλος λόγος, λέγω δὲ τὸ ἅμα καὶ τὸ χωρὶς ὥστε μὴ τὸ ἐφεξῆς ἀλλ' ἕν τι γίγνεσθαι· οὐ γάρ ἐστι τὸ ψεῦδος καὶ τὸ ἀληθὲς ἐν τοῖς πράγμασιν, οἷον τὸ μὲν ἀγαθὸν ἀληθὲς τὸ δὲ κακὸν εὐθὺς ψεῦδος, ἀλλ' ἐν διανοίᾳ, περὶ δὲ τὰ ἁπλᾶ καὶ τὰ τί ἐστιν οὐδ' ἐν διανοίᾳ·—ὅσα μὲν οὖν δεῖ θεωρῆσαι περὶ τὸ οὕτως ὂν καὶ μὴ ὄν, ὕστερον ἐπισκεπτέον·	Let us dismiss accidental being, then, since it has been sufficiently defined. As for being as the true, and not-being as the false: they depend on combination and division, and taken together they concern the apportioning of a contradiction. (For the true has the affirmation in the case of what is combined and the negation in the case of what is divided, while the false has the contradictory of this apportionment. How it happens that we think things together or apart is another question—I mean "together" and "apart" in the sense not of succession but of some unity coming about.) For falsity and truth are not in things—as if, say, the good were true and the bad immediately false—but in thought; and concerning simple things and what-things-are, not even in thought. What we must study concerning being and not-being in this sense, then, will have to be examined later.

CHAPTER 4

GREEK	ENGLISH
ἐπεὶ δὲ ἡ συμπλοκή ἐστιν καὶ ἡ διαίρεσις ἐν διανοίᾳ ἀλλ' οὐκ ἐν τοῖς πράγμασι, τὸ δ' οὕτως ὂν ἕτερον ὂν τῶν κυρίως (ἢ γὰρ τὸ τί ἐστιν ἢ ὅτι ποιὸν ἢ ὅτι ποσὸν ἤ τι ἄλλο συνάπτει ἢ ἀφαιρεῖ ἡ διάνοιά, τὸ μὲν ὡς	But since combination and division are in thought and not in things, and being in this sense is different from the things that are in the strict sense (for thought connects or separates either the what-it-

	GREEK	ENGLISH
	συμβεβηκὸς καὶ τὸ ὡς ἀληθὲς ὂν ἀφετέον—τὸ γὰρ αἴτιον τοῦ μὲν ἀόριστον τοῦ δὲ τῆς διανοίας τι πάθος,	is, or a quality, or a quantity, or something else), we must set aside both accidental being and being as the true. For the cause of the one is indefinite, and of the other some affection of thought;
1028a	καὶ ἀμφότερα περὶ τὸ λοιπὸν γένος τοῦ ὄντος, καὶ οὐκ ἔξω δηλοῦσιν οὖσάν τινα φύσιν τοῦ ὄντος—διὸ ταῦτα μὲν ἀφείσθω, σκεπτέον δὲ τοῦ ὄντος αὐτοῦ τὰ αἴτια καὶ τὰς ἀρχὰς ᾗ ὄν.	and both concern the remaining genus of being, and do not reveal any nature of being existing outside. So let these be dismissed, and let us examine the causes and principles of being itself, as being.
1028a	[φανερὸν δ’ ἐν οἷς διωρισάμεθα περὶ τοῦ ποσαχῶς λέγεται ἕκαστον, ὅτι πολλαχῶς λέγεται τὸ ὄν.]	It is evident, from what we have distinguished concerning the number of ways in which each thing is said, that being is said in many ways.[4]

4 Many editors regard this sentence as a later addition.

Book Zeta (VII)

Substance and essence.

CHAPTER 1

GREEK

τὸ ὂν λέγεται πολλαχῶς, καθάπερ διειλόμεθα πρότερον ἐν τοῖς περὶ τοῦ ποσαχῶς· σημαίνει γὰρ τὸ μὲν τί ἐστι καὶ τόδε τι, τὸ δὲ ποιὸν ἢ ποσὸν ἢ τῶν ἄλλων ἕκαστον τῶν οὕτω κατηγορουμένων. τοσαυταχῶς δὲ λεγομένου τοῦ ὄντος φανερὸν ὅτι τούτων πρῶτον ὂν τὸ τί ἐστιν, ὅπερ σημαίνει τὴν οὐσίαν (ὅταν μὲν γὰρ εἴπωμεν ποιόν τι τόδε, ἢ ἀγαθὸν λέγομεν ἢ κακόν, ἀλλ᾽ οὐ τρίπηχυ ἢ ἄνθρωπον· ὅταν δὲ τί ἐστιν, οὐ λευκὸν οὐδὲ θερμὸν οὐδὲ τρίπηχυ, ἀλλὰ ἄνθρωπον ἢ θεόν), τὰ δ᾽ ἄλλα λέγεται ὄντα τῷ τοῦ οὕτως ὄντος τὰ μὲν ποσότητες εἶναι, τὰ δὲ ποιότητες, τὰ δὲ πάθη, τὰ δὲ ἄλλο τι.

διὸ κἂν ἀπορήσειέ τις πότερον τὸ βαδίζειν καὶ τὸ ὑγιαίνειν καὶ τὸ καθῆσθαι ἕκαστον αὐτῶν ὂν σημαίνει, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων ὁτουοῦν τῶν τοιούτων· οὐδὲν γὰρ αὐτῶν ἐστὶν οὔτε καθ᾽ αὑτὸ πεφυκὸς οὔτε χωρίζεσθαι δυνατὸν τῆς οὐσίας, ἀλλὰ μᾶλλον, εἴπερ, τὸ βαδίζον τῶν ὄντων καὶ τὸ καθήμενον καὶ τὸ ὑγιαῖνον. ταῦτα δὲ μᾶλλον φαίνεται ὄντα, διότι ἔστι τι τὸ ὑποκείμενον αὐτοῖς ὡρισμένον (τοῦτο δ᾽ ἐστὶν ἡ οὐσία καὶ τὸ καθ᾽ ἕκαστον), ὅπερ ἐμφαίνεται ἐν τῇ κατηγορίᾳ τῇ τοιαύτῃ· τὸ ἀγαθὸν γὰρ ἢ τὸ καθήμενον οὐκ ἄνευ τούτου λέγεται. δῆλον οὖν ὅτι διὰ ταύτην κἀκείνων ἕκαστον ἔστιν, ὥστε τὸ πρώτως ὂν καὶ οὐ τὶ ὂν ἀλλ᾽ ὂν ἁπλῶς ἡ οὐσία ἂν εἴη.

πολλαχῶς μὲν οὖν λέγεται τὸ πρῶτον· ὅμως δὲ πάντως ἡ οὐσία πρῶτον, καὶ λόγῳ καὶ γνώσει καὶ χρόνῳ. τῶν μὲν γὰρ ἄλλων κατηγορημάτων οὐθὲν χωριστόν, αὕτη δὲ μόνη· καὶ τῷ λόγῳ δὲ τοῦτο πρῶτον (ἀνάγκη γὰρ ἐν τῷ ἑκάστου λόγῳ τὸν τῆς οὐσίας ἐνυπάρχειν)· καὶ εἰδέναι δὲ τότ᾽ οἰόμεθα ἕκαστον μάλιστα, ὅταν τί ἐστιν ὁ ἄνθρωπος

ENGLISH

Being is said in many ways, as we distinguished earlier in our discussion of the number of ways things are said. For it signifies, on the one hand, what a thing is and a "this," and on the other a quality or quantity or each of the other things predicated in this way. But while being is said in so many ways, it is evident that of these the primary being is the what-it-is, which signifies the substance. (For when we say what quality this thing has, we say that it is good or bad, but not that it is three cubits long or a human being; but when we say what it is, we do not say pale or hot or three cubits long, but a human being or a god.) And the other things are called beings because they are quantities of what is in this sense, or qualities of it, or affections of it, or something else of this kind.[1]

This is why one might even raise the puzzle whether walking, being healthy, and sitting each signify a being, and similarly with anything else of this sort. For none of them is by nature in its own right or capable of being separated from substance; rather, if anything, it is what walks, what sits, and what is healthy that are among the beings. And these appear more to be beings because there is something definite underlying them—namely, the substance and the individual—which shows itself in a predication of this kind; for "good" or "sitting" is not said without it. Clearly, then, it is because of this that each of those also is, so that what primarily is—not is something, but simply is—would be substance.

Now "first" is said in many ways; but substance is first in every sense: in account, in knowledge, and in time. For none of the other categories is separable, but substance alone is. And it is first in account, since in the account of each thing the account of its substance must be present. And we

1 The earlier discussion is Book Δ.

GREEK	ENGLISH
γνῶμεν ἢ τὸ πῦρ, [1028b] μᾶλλον ἢ τὸ ποιὸν ἢ τὸ ποσὸν ἢ τὸ πού, ἐπεὶ καὶ αὐτῶν τούτων τότε ἕκαστον ἴσμεν, ὅταν τί ἐστι τὸ ποσὸν ἢ τὸ ποιὸν γνῶμεν.	think we know each thing most fully when we know what it is—what a human being or fire is— [1028b] rather than its quality or quantity or place; since we know each of these things themselves, too, only when we know what the quantity or the quality is.
1028b καὶ δὴ καὶ τὸ πάλαι τε καὶ νῦν καὶ ἀεὶ ζητούμενον καὶ ἀεὶ ἀπορούμενον, τί τὸ ὄν, τοῦτό ἐστι τίς ἡ οὐσία (τοῦτο γὰρ οἱ μὲν ἓν εἶναί φασιν οἱ δὲ πλείω ἢ ἕν, καὶ οἱ μὲν πεπερασμένα οἱ δὲ ἄπειρα), διὸ καὶ ἡμῖν καὶ μάλιστα καὶ πρῶτον καὶ μόνον ὡς εἰπεῖν περὶ τοῦ οὕτως ὄντος θεωρητέον τί ἐστιν.	And indeed the question that was raised long ago, is raised now, and always will be, and is always a source of puzzlement—what is being?—is just this: what is substance? (For it is this that some say is one and others more than one, some limited in number and others unlimited.) This is why we too must study, most of all and first and, one might say, exclusively, what being in this sense is.

WHICH THINGS ARE SUBSTANCES?

Bodies are agreed to be substances; Plato and others posit Forms, numbers, and more.

GREEK	ENGLISH
δοκεῖ δ' ἡ οὐσία ὑπάρχειν φανερώτατα μὲν τοῖς σώμασιν (διὸ τά τε ζῷα καὶ τὰ φυτὰ καὶ τὰ μόρια αὐτῶν οὐσίας εἶναί φαμεν, καὶ τὰ φυσικὰ σώματα, οἷον πῦρ καὶ ὕδωρ καὶ γῆν καὶ τῶν τοιούτων ἕκαστον, καὶ ὅσα ἢ μόρια τούτων ἢ ἐκ τούτων ἐστίν, ἢ μορίων ἢ πάντων, οἷον ὅ τε οὐρανὸς καὶ τὰ μόρια αὐτοῦ, ἄστρα καὶ σελήνη καὶ ἥλιος)· πότερον δὲ αὗται μόναι οὐσίαι εἰσὶν ἢ καὶ ἄλλαι, ἢ τούτων τινὲς ἢ καὶ ἄλλαι, ἢ τούτων μὲν οὐθὲν ἕτεραι δέ τινες, σκεπτέον. δοκεῖ δέ τισι τὰ τοῦ σώματος πέρατα, οἷον ἐπιφάνεια καὶ γραμμὴ καὶ στιγμὴ καὶ μονάς, εἶναι οὐσίαι, καὶ μᾶλλον ἢ τὸ σῶμα καὶ τὸ στερεόν.	Substance is thought to belong most evidently to bodies. This is why we say that animals and plants and their parts are substances, and natural bodies such as fire, water, earth, and each thing of this kind, and whatever is either a part of these or composed of them—of some of them or of all—such as the heavens and their parts, stars, moon, and sun. But whether these alone are substances, or there are others too; or some of these and others too; or none of these but some others, must be examined. Some people think that the limits of a body—surface, line, point, and unit—are substances, and more so than the body and the solid.
ἔτι παρὰ τὰ αἰσθητὰ οἱ μὲν οὐκ οἴονται εἶναι οὐδὲν τοιοῦτον, οἱ δὲ πλείω καὶ μᾶλλον ὄντα ἀΐδια, ὥσπερ Πλάτων τά τε εἴδη καὶ τὰ μαθηματικὰ δύο οὐσίας, τρίτην δὲ τὴν τῶν αἰσθητῶν σωμάτων οὐσίαν, Σπεύσιππος δὲ καὶ πλείους οὐσίας ἀπὸ τοῦ ἑνὸς ἀρξάμενος, καὶ ἀρχὰς ἑκάστης οὐσίας, ἄλλην μὲν ἀριθμῶν ἄλλην δὲ μεγεθῶν, ἔπειτα ψυχῆς· καὶ τοῦτον δὴ τὸν τρόπον ἐπεκτείνει τὰς οὐσίας. ἔνιοι δὲ τὰ μὲν εἴδη καὶ τοὺς ἀριθμοὺς τὴν αὐτὴν ἔχειν φασὶ φύσιν, τὰ δὲ ἄλλα ἐχόμενα, γραμμὰς καὶ ἐπίπεδα, μέχρι πρὸς τὴν τοῦ οὐρανοῦ οὐσίαν καὶ τὰ αἰσθητά.	

GREEK	ENGLISH
	Further, some think there is nothing of this kind besides perceptible things, while others think there are more things, and that they are more fully beings because they are eternal. Plato, for instance, thinks the Forms and the mathematical objects are two kinds of substance, and the third is the substance of perceptible bodies. Speusippus posits still more substances, beginning from the One, and principles for each substance: one for numbers, another for magnitudes, then another for soul; and in this way he extends the substances. And some say that the Forms and the numbers have the same nature, and that the other things follow on from them—lines and planes—all the way to the substance of the heavens and to perceptible things.[2]
περὶ δὴ τούτων τί λέγεται καλῶς ἢ μὴ καλῶς, καὶ τίνες εἰσὶν οὐσίαι, καὶ πότερον εἰσί τινες παρὰ τὰς αἰσθητὰς ἢ οὐκ εἰσί, καὶ αὗται πῶς εἰσί, καὶ πότερον ἔστι τις χωριστὴ οὐσία, καὶ διὰ τί καὶ πῶς, ἢ οὐδεμία, παρὰ τὰς αἰσθητάς, σκεπτέον, ὑποτυπωσαμένοις τὴν οὐσίαν πρῶτον τί ἐστιν.	Concerning these matters, then—what is said well or not well, which things are substances, whether there are some besides perceptible substances or not, and how these exist, and whether there is some separable substance, and if so why and how, or none, besides the perceptible ones—we must inquire, after first sketching out what substance is.

SUBSTANCE AS THE UNDERLYING SUBJECT

If substance is the ultimate subject, matter seems to be substance, which is impossible.

GREEK	ENGLISH
λέγεται δ' ἡ οὐσία, εἰ μὴ πλεοναχῶς, ἀλλ' ἐν τέτταρσί γε μάλιστα· καὶ γὰρ τὸ τί ἦν εἶναι καὶ τὸ καθόλου καὶ τὸ γένος οὐσία δοκεῖ εἶναι ἑκάστου, καὶ τέταρτον τούτων τὸ ὑποκείμενον. τὸ δ' ὑποκείμενόν ἐστι καθ' οὗ τὰ ἄλλα λέγεται, ἐκεῖνο δὲ αὐτὸ μηκέτι κατ' ἄλλου· διὸ πρῶτον περὶ τούτου διοριστέον· 1029a μάλιστα γὰρ δοκεῖ εἶναι οὐσία τὸ ὑποκείμενον πρῶτον. τοιοῦτον δὲ τρόπον μέν τινα ἡ ὕλη λέγεται, ἄλλον δὲ τρόπον ἡ μορφή, τρίτον δὲ τὸ ἐκ τούτων (λέγω δὲ τὴν μὲν ὕλην οἷον τὸν χαλκόν, τὴν δὲ μορφὴν τὸ σχῆμα τῆς ἰδέας, τὸ δ' ἐκ τούτων τὸν ἀνδριάντα τὸ σύνολον), ὥστε εἰ τὸ εἶδος τῆς ὕλης πρότερον καὶ μᾶλλον ὄν, καὶ τοῦ ἐξ ἀμφοῖν πρότερον ἔσται διὰ τὸν αὐτὸν λόγον.	Substance is said, if not in more ways, at least chiefly in four. For the essence, the universal, and the genus are thought to be the substance of each thing, and fourth among these the underlying subject. The underlying subject is that of which the other things are said, while it itself is no longer said of anything else. This is why we must first make distinctions about it; 1029a for the primary underlying subject seems most of all to be substance. In one sense, matter is said to be of this kind; in another, shape; and in a third, what is composed of these. (By matter I mean, for instance, the bronze; by shape, the figure of its form; and by what is composed of these, the statue, the composite.) So if the form is prior to the matter and more fully a being, it will also, by the same argument, be prior to what is composed of both.
1029a νῦν μὲν οὖν τύπῳ εἴρηται τί ποτ' ἐστὶν ἡ οὐσία, ὅτι τὸ μὴ καθ' ὑποκειμένου ἀλλὰ καθ' οὗ τὰ ἄλλα· δεῖ δὲ μὴ μόνον	We have now said in outline what substance is: that it is what is not said of an underlying subject,

2 Speusippus, Plato's nephew, headed the Academy after Plato's death in 347 BC.

GREEK

οὕτως· οὐ γὰρ ἱκανόν· αὐτὸ γὰρ τοῦτο ἄδηλον, καὶ ἔτι ἡ ὕλη οὐσία γίγνεται. εἰ γὰρ μὴ αὕτη οὐσία, τίς ἐστιν ἄλλη διαφεύγει· περιαιρουμένων γὰρ τῶν ἄλλων οὐ φαίνεται οὐδὲν ὑπομένον· τὰ μὲν γὰρ ἄλλα τῶν σωμάτων πάθη καὶ ποιήματα καὶ δυνάμεις, τὸ δὲ μῆκος καὶ πλάτος καὶ βάθος ποσότητές τινες ἀλλ' οὐκ οὐσίαι (τὸ γὰρ ποσὸν οὐκ οὐσία), ἀλλὰ μᾶλλον ᾧ ὑπάρχει ταῦτα πρώτῳ, ἐκεῖνό ἐστιν οὐσία. ἀλλὰ μὴν ἀφαιρουμένου μήκους καὶ πλάτους καὶ βάθους οὐδὲν ὁρῶμεν ὑπολειπόμενον, πλὴν εἴ τί ἐστι τὸ ὁριζόμενον ὑπὸ τούτων, ὥστε τὴν ὕλην ἀνάγκη φαίνεσθαι μόνην οὐσίαν οὕτω σκοπουμένοις.

ENGLISH

but of which the other things are said. But we must not leave it only at this, for it is not enough. This very claim is unclear, and further, matter turns out to be substance. For if matter is not substance, what other substance there is eludes us. When everything else is stripped away, nothing appears to remain. For the other things are affections, products, and capacities of bodies, and length, breadth, and depth are quantities of a sort, not substances (for quantity is not substance); rather, what these belong to primarily is substance. But when length, breadth, and depth are taken away, we see nothing left over, unless there is something that is bounded by these; so to those who look at it this way, matter must appear to be the only substance.

λέγω δ' ὕλην ἣ καθ' αὑτὴν μήτε τὶ μήτε ποσὸν μήτε ἄλλο μηδὲν λέγεται οἷς ὥρισται τὸ ὄν. ἔστι γάρ τι καθ' οὗ κατηγορεῖται τούτων ἕκαστον, ᾧ τὸ εἶναι ἕτερον καὶ τῶν κατηγοριῶν ἑκάστῃ (τὰ μὲν γὰρ ἄλλα τῆς οὐσίας κατηγορεῖται, αὕτη δὲ τῆς ὕλης), ὥστε τὸ ἔσχατον καθ' αὑτὸ οὔτε τὶ οὔτε ποσὸν οὔτε ἄλλο οὐδέν ἐστιν· οὐδὲ δὴ αἱ ἀποφάσεις, καὶ γὰρ αὗται ὑπάρξουσι κατὰ συμβεβηκός. ἐκ μὲν οὖν τούτων θεωροῦσι συμβαίνει οὐσίαν εἶναι τὴν ὕλην· ἀδύνατον δέ· καὶ γὰρ τὸ χωριστὸν καὶ τὸ τόδε τι ὑπάρχειν δοκεῖ μάλιστα τῇ οὐσίᾳ, διὸ τὸ εἶδος καὶ τὸ ἐξ ἀμφοῖν οὐσία δόξειεν ἂν εἶναι μᾶλλον τῆς ὕλης.

By matter I mean what in its own right is said to be neither a something nor a quantity nor anything else by which being is defined. For there is something of which each of these is predicated, whose being is different from that of each of the categories. (For the other categories are predicated of substance, and substance of matter.) So the ultimate subject is in its own right neither a something nor a quantity nor anything else. Nor is it the negations of these, since these too will belong to it accidentally. From these considerations, then, it follows that matter is substance. But this is impossible; for being separable and being a "this" are thought to belong most of all to substance. This is why form and what is composed of both would seem to be substance more than matter is.

τὴν μὲν τοίνυν ἐξ ἀμφοῖν οὐσίαν, λέγω δὲ τὴν ἔκ τε τῆς ὕλης καὶ τῆς μορφῆς, ἀφετέον, ὑστέρα γὰρ καὶ δήλη· φανερὰ δέ πως καὶ ἡ ὕλη· περὶ δὲ τῆς τρίτης σκεπτέον, αὕτη γὰρ ἀπορωτάτη. ὁμολογοῦνται δ' οὐσίαι εἶναι τῶν αἰσθητῶν τινές, ὥστε ἐν ταύταις ζητητέον πρῶτον. [1029b] πρὸ ἔργου γὰρ τὸ μεταβαίνειν εἰς τὸ γνωριμώτερον. ἡ γὰρ μάθησις οὕτω γίγνεται πᾶσι διὰ τῶν ἧττον γνωρίμων φύσει εἰς τὰ γνώριμα μᾶλλον· καὶ τοῦτο ἔργον ἐστίν, ὥσπερ ἐν ταῖς πράξεσι τὸ ποιῆσαι ἐκ τῶν ἑκάστῳ ἀγαθῶν τὰ ὅλως ἀγαθὰ ἑκάστῳ ἀγαθά, οὕτως ἐκ τῶν αὐτῷ γνωριμωτέρων τὰ τῇ φύσει γνώριμα αὐτῷ γνώριμα.

The substance composed of both—I mean composed of matter and shape—should be set aside, since it is posterior and clear. Matter, too, is in a way evident. But we must examine the third, since this is the most puzzling. It is agreed that some perceptible things are substances, so we should look for it first among these. [1029b] For it is useful to proceed toward what is more knowable. Learning always takes place in this way, for everyone: through what is less knowable by nature toward what is more knowable. And this is our task: just as in action the task is to start from what is good for each person and make what is good without qualification good for each, so here the task is to start from what is more knowable to oneself and make what is knowable by nature knowable to oneself.

	GREEK	ENGLISH
1029b	τὰ δ' ἑκάστοις γνώριμα καὶ πρῶτα πολλάκις ἠρέμα ἐστὶ γνώριμα, καὶ μικρὸν ἢ οὐθὲν ἔχει τοῦ ὄντος· ἀλλ' ὅμως ἐκ τῶν φαύλως μὲν γνωστῶν αὐτῷ δὲ γνωστῶν τὰ ὅλως γνωστὰ γνῶναι πειρατέον, μεταβαίνοντας, ὥσπερ εἴρηται, διὰ τούτων αὐτῶν.	But what is knowable and primary for particular people is often barely knowable, and has little or nothing of being. All the same, starting from what is poorly known but known to oneself, we must try to know what is knowable without qualification, proceeding, as has been said, through these very things.

ESSENCE

The essence of a thing is what it is said to be in its own right.

GREEK	ENGLISH
ἐπεὶ δ' ἐν ἀρχῇ διειλόμεθα πόσοις ὁρίζομεν τὴν οὐσίαν, καὶ τούτων ἕν τι ἐδόκει εἶναι τὸ τί ἦν εἶναι, θεωρητέον περὶ αὐτοῦ. καὶ πρῶτον εἴπωμεν ἔνια περὶ αὐτοῦ λογικῶς, ὅτι ἐστὶ τὸ τί ἦν εἶναι ἑκάστου ὃ λέγεται καθ' αὑτό. οὐ γάρ ἐστι τὸ σοὶ εἶναι τὸ μουσικῷ εἶναι· οὐ γὰρ κατὰ σαυτὸν εἶ μουσικός. ὃ ἄρα κατὰ σαυτόν. οὐδὲ δὴ τοῦτο πᾶν· οὐ γὰρ τὸ οὕτως καθ' αὑτὸ ὡς ἐπιφανείᾳ λευκόν, ὅτι οὐκ ἔστι τὸ ἐπιφανείᾳ εἶναι τὸ λευκῷ εἶναι. ἀλλὰ μὴν οὐδὲ τὸ ἐξ ἀμφοῖν, τὸ ἐπιφανείᾳ λευκῇ, ὅτι πρόσεστιν αὐτό.	Since at the start we distinguished the number of ways in which we define substance, and one of these was thought to be the essence, we must study it. And first let us say some things about it in the abstract: that the essence of each thing is what it is said to be in its own right. For being you is not being musical, since you are not musical in your own right. Your essence, then, is what you are in your own right. But not even all of this: not what is in its own right in the way that white belongs to a surface, since being a surface is not being white. But neither is it the combination of both, being a white surface, because the thing itself is added.[3]
ἐν ᾧ ἄρα μὴ ἐνέσται λόγῳ αὐτό, λέγοντι αὐτό, οὗτος ὁ λόγος τοῦ τί ἦν εἶναι ἑκάστῳ, ὥστ' εἰ τὸ ἐπιφανείᾳ λευκῇ εἶναί ἐστι τὸ ἐπιφανείᾳ εἶναι λείᾳ, τὸ λευκῷ καὶ λείῳ εἶναι τὸ αὐτὸ καὶ ἕν. ἐπεὶ δ' ἔστι καὶ κατὰ τὰς ἄλλας κατηγορίας σύνθετα (ἔστι γάρ τι ὑποκείμενον ἑκάστῳ, οἷον τῷ ποιῷ καὶ τῷ ποσῷ καὶ τῷ ποτὲ καὶ τῷ ποὺ καὶ τῇ κινήσει), σκεπτέον ἆρ' ἔστι λόγος τοῦ τί ἦν εἶναι ἑκάστῳ αὐτῶν, καὶ ὑπάρχει καὶ τούτοις τὸ τί ἦν εἶναι, οἷον λευκῷ ἀνθρώπῳ [τί ἦν λευκῷ ἀνθρώπῳ]. ἔστω δὴ ὄνομα αὐτῷ ἱμάτιον. τί ἐστι τὸ ἱματίῳ εἶναι; ἀλλὰ μὴν οὐδὲ τῶν καθ' αὑτὸ λεγομένων οὐδὲ τοῦτο.	The account, then, in which the thing itself will not be present, but which expresses it—this is the account of the essence of each thing. So if being a white surface were the same as being a smooth surface, then being white and being smooth would be one and the same. But since there are also composites in the other categories (for there is some underlying subject for each, such as for quality, quantity, time, place, and motion), we must examine whether there is an account of the essence of each of them, and whether an essence belongs to these too—to white human being, for instance. Let the name for this be "cloak." What is being a cloak? But surely this is not among the things said in their own right either.
ἢ τὸ οὐ καθ' αὑτὸ λέγεται διχῶς, καὶ τούτου ἐστὶ τὸ μὲν ἐκ προσθέσεως τὸ δὲ οὔ. τὸ μὲν γὰρ τῷ αὐτὸ ἄλλῳ προσκεῖσθαι λέγεται ὃ ὁρίζεται, οἷον εἰ τὸ λευκῷ εἶναι ὁριζόμενος λέγοι λευκοῦ ἀνθρώπου λόγον· τὸ δὲ τῷ ἄλλο αὐτῷ, οἷον εἰ σημαίνοι τὸ ἱμάτιον λευκὸν ἄνθρωπον, ὁ δὲ ὁρίζοιτο ἱμάτιον ὡς λευκόν. τὸ δὴ λευκὸς ἄνθρωπος ἔστι μὲν λευκόν, [1030a] οὐ μέντοι ⟨τὸ⟩ τί ἦν εἶναι λευκῷ εἶναι.	Or is it that "not in its own right" is said in two ways, and of this one kind arises from addition and the other not? The one is said because the thing being defined is itself added to something else: if, for instance, someone defining being white were to state the account of white human

3 Aristotle uses phrases like "being you" (*to soi einai*) for the essence of a particular thing.

GREEK

—ἀλλὰ τὸ ἱματίῳ εἶναι ἆρά ἐστι τί ἦν εἶναί τι [ἢ] ὅλως; ἢ οὔ;

1030a ὅπερ γάρ τί ἐστι τὸ τί ἦν εἶναι· ὅταν δ' ἄλλο κατ' ἄλλου λέγηται, οὐκ ἔστιν ὅπερ τόδε τι, οἷον ὁ λευκὸς ἄνθρωπος οὐκ ἔστιν ὅπερ τόδε τι, εἴπερ τὸ τόδε ταῖς οὐσίαις ὑπάρχει μόνον· ὥστε τὸ τί ἦν εἶναί ἐστιν ὅσων ὁ λόγος ἐστὶν ὁρισμός. ὁρισμὸς δ' ἐστὶν οὐκ ἂν ὄνομα λόγῳ ταὐτὸ σημαίνῃ (πάντες γὰρ ἂν εἶεν οἱ λόγοι ὅροι· ἔσται γὰρ ὄνομα ὁτῳοῦν λόγῳ, ὥστε καὶ ἡ Ἰλιὰς ὁρισμὸς ἔσται), ἀλλ' ἐὰν πρώτου τινὸς ᾖ· τοιαῦτα δ' ἐστὶν ὅσα λέγεται μὴ τῷ ἄλλο κατ' ἄλλου λέγεσθαι.

οὐκ ἔσται ἄρα οὐδενὶ τῶν μὴ γένους εἰδῶν ὑπάρχον τὸ τί ἦν εἶναι, ἀλλὰ τούτοις μόνον (ταῦτα γὰρ δοκεῖ οὐ κατὰ μετοχὴν λέγεσθαι καὶ πάθος οὐδ' ὡς συμβεβηκός)· ἀλλὰ λόγος μὲν ἔσται ἑκάστου καὶ τῶν ἄλλων τί σημαίνει, ἐὰν ᾖ ὄνομα, ὅτι τόδε τῷδε ὑπάρχει, ἢ ἀντὶ λόγου ἁπλοῦ ἀκριβέστερος· ὁρισμὸς δ' οὐκ ἔσται οὐδὲ τὸ τί ἦν εἶναι. ἢ καὶ ὁ ὁρισμὸς ὥσπερ καὶ τὸ τί ἐστι πλεοναχῶς λέγεται; καὶ γὰρ τὸ τί ἐστιν ἕνα μὲν τρόπον σημαίνει τὴν οὐσίαν καὶ τὸ τόδε τι, ἄλλον δὲ ἕκαστον τῶν κατηγορουμένων, ποσὸν ποιὸν καὶ ὅσα ἄλλα τοιαῦτα.

ὥσπερ γὰρ καὶ τὸ ἔστιν ὑπάρχει πᾶσιν, ἀλλ' οὐχ ὁμοίως ἀλλὰ τῷ μὲν πρώτως τοῖς δ' ἑπομένως, οὕτω καὶ τὸ τί ἐστιν ἁπλῶς μὲν τῇ οὐσίᾳ πὼς δὲ τοῖς ἄλλοις· καὶ γὰρ τὸ ποιὸν ἐροίμεθ' ἂν τί ἐστιν, ὥστε καὶ τὸ ποιὸν τῶν τί ἐστιν, ἀλλ' οὐχ ἁπλῶς, ἀλλ' ὥσπερ ἐπὶ τοῦ μὴ ὄντος λογικῶς φασί τινες εἶναι τὸ μὴ ὄν, οὐχ ἁπλῶς ἀλλὰ μὴ ὄν, οὕτω καὶ τὸ ποιόν.—δεῖ μὲν οὖν σκοπεῖν καὶ τὸ πῶς δεῖ λέγειν περὶ ἕκαστον, οὐ μὴν μᾶλλόν γε ἢ τὸ πῶς ἔχει· διὸ καὶ νῦν ἐπεὶ τὸ λεγόμενον φανερόν, καὶ τὸ τί ἦν εἶναι ὁμοίως ὑπάρξει πρώτως μὲν καὶ ἁπλῶς τῇ οὐσίᾳ, εἶτα καὶ τοῖς ἄλλοις, ὥσπερ καὶ τὸ τί ἐστιν, οὐχ ἁπλῶς τί ἦν εἶναι ἀλλὰ ποιῷ ἢ ποσῷ τί ἦν εἶναι.

ENGLISH

being. The other because something else is added to it: if, for instance, "cloak" signified white human being, and someone defined cloak as white. A white human being is white, 1030a but its essence is not being white. But is being a cloak an essence at all? Or not?

For the essence is precisely a "this"; but when one thing is said of another, the result is not precisely a "this." A white human being, for instance, is not precisely a "this," if indeed "this" belongs only to substances. So there is an essence of those things whose account is a definition. And there is a definition not where a name signifies the same as an account (for then all accounts would be definitions, since there will be a name for any account whatever, so that even the *Iliad* will be a definition), but where the account is of something primary; and such things are those said not by one thing's being said of another.

So essence will belong to nothing except species of a genus, and to these alone (for these are thought to be said not by participation or as an affection or as an accident). For everything else too, if it has a name, there will be an account of what it signifies —that this belongs to that—or instead of a simple account a more precise one; but there will be no definition or essence. Or is it that definition, like the what-it-is, is said in several ways? For the what-it-is in one sense signifies the substance and the "this," and in another each of the things predicated—quantity, quality, and the others of this kind.

For just as "is" belongs to all things, but not in the same way—to one primarily, to the others derivatively—so too the what-it-is belongs without qualification to substance, and in a way to the other things. For we might ask of a quality too what it is, so that quality is also among the what-it-is's—but not without qualification. Rather, just as in the case of not-being some people say, speaking in the abstract, that not-being is—not without qualification, but is not-being—so too with quality. We must examine how one ought to speak about each thing, then, but no more than how things actually are. This is why now, since what is being said is evident, essence too will similarly belong primarily and without qualification to substance, and then to the other things as well, just as the what-it-

GREEK	ENGLISH
	is does: not essence without qualification, but the essence of a quality or of a quantity.
δεῖ γὰρ ἢ ὁμωνύμως ταῦτα φάναι εἶναι ὄντα, ἢ προστιθέντας καὶ ἀφαιροῦντας, ὥσπερ καὶ τὸ μὴ ἐπιστητὸν ἐπιστητόν, ἐπεὶ τό γε ὀρθόν ἐστι μήτε ὁμωνύμως φάναι μήτε ὡσαύτως ἀλλ' ὥσπερ τὸ ἰατρικὸν τῷ πρὸς τὸ αὐτὸ μὲν καὶ ἕν, οὐ τὸ αὐτὸ δὲ καὶ ἕν, οὐ μέντοι οὐδὲ ὁμωνύμως· [1030b] οὐδὲ γὰρ ἰατρικὸν σῶμα καὶ ἔργον καὶ σκεῦος λέγεται οὔτε ὁμωνύμως οὔτε καθ' ἓν ἀλλὰ πρὸς ἕν. ἀλλὰ ταῦτα μὲν ὁποτέρως τις ἐθέλει λέγειν διαφέρει οὐδέν· ἐκεῖνο δὲ φανερὸν ὅτι ὁ πρώτως καὶ ἁπλῶς ὁρισμὸς καὶ τὸ τί ἦν εἶναι τῶν οὐσιῶν ἐστίν. οὐ μὴν ἀλλὰ καὶ τῶν ἄλλων ὁμοίως ἐστί, πλὴν οὐ πρώτως.	For we must say that these are beings either homonymously, or by adding and subtracting qualifications, in the way that the unknowable is knowable. The correct thing is to say they are neither homonymous nor the same, but as with "medical": related to one and the same thing, but not being one and the same thing, and yet not homonymous either. [1030b] For a body, an operation, and an instrument are called medical neither homonymously nor in virtue of one meaning, but by relation to one thing. But it makes no difference which way one wants to speak of these things. What is evident is that definition and essence in the primary and unqualified sense belong to substances. Still, they belong similarly to the other things as well, only not primarily.[4]
1030b οὐ γὰρ ἀνάγκη, ἂν τοῦτο τιθῶμεν, τούτου ὁρισμὸν εἶναι ὃ ἂν λόγῳ τὸ αὐτὸ σημαίνῃ, ἀλλὰ τινὶ λόγῳ· τοῦτο δὲ ἐὰν ἑνὸς ᾖ, μὴ τῷ συνεχεῖ ὥσπερ ἡ Ἰλιὰς ἢ ὅσα συνδέσμω ι,ι ἀλλ' ἐὰν ὁσαχῶς λέγεται τὸ ἕν· τὸ δ' ἓν λέγεται ὥσπερ τὸ ὄν· τὸ δὲ ὂν τὸ μὲν τόδε τι τὸ δὲ ποσὸν τὸ δὲ ποιόν τι σημαίνει. διὸ καὶ λευκοῦ ἀνθρώπου ἔσται λόγος καὶ ὁρισμός, ἄλλον δὲ τρόπον καὶ τοῦ λευκοῦ καὶ οὐσίας.	For if we posit this, it is not necessary that there be a definition of whatever signifies the same as an account, but only as a certain kind of account; and this is if it is an account of something one—not one by continuity, like the *Iliad*, or like things bound together by a connective, but one in one of the ways in which "one" is said. And "one" is said in the same ways as "being"; and being signifies in one sense a "this," in another a quantity, in another a quality. This is why there will also be an account and a definition of white human being, but in a different way from that of white and of substance.

THE SNUB NOSE

Coupled terms like "snub" resist definition, so definition belongs chiefly to substance.

GREEK	ENGLISH
ἔχει δ' ἀπορίαν, ἐάν τις μὴ φῇ ὁρισμὸν εἶναι τὸν ἐκ προσθέσεως λόγον, τίνος ἔσται ὁρισμὸς τῶν οὐχ ἁπλῶν ἀλλὰ συνδεδυασμένων· ἐκ προσθέσεως γὰρ ἀνάγκη δηλοῦν. λέγω δὲ οἷον ἔστι ῥὶς καὶ κοιλότης, καὶ σιμότης τὸ ἐκ τῶν δυοῖν λεγόμενον τῷ τόδε ἐν τῷδε, καὶ οὐ κατὰ συμβεβηκός γε οὔθ' ἡ κοιλότης οὔθ' ἡ σιμότης πάθος τῆς ῥινός, ἀλλὰ καθ' αὑτήν· οὐδ' ὡς τὸ λευκὸν Καλλίᾳ, ἢ ἀνθρώπῳ, ὅτι Καλλίας λευκὸς ᾧ συμβέβηκεν ἀνθρώπῳ εἶναι, ἀλλ' ὡς τὸ ἄρρεν τῷ ζῴῳ καὶ τὸ ἴσον τῷ ποσῷ καὶ πάντα ὅσα λέγεται καθ' αὑτὰ ὑπάρχειν.	There is a puzzle, if one denies that an account arising from addition is a definition: of which things that are not simple but coupled will there be a definition? For these must be made clear by addition. I mean, for instance: there is nose and concavity, and snubness, which is said from the two by one being in the other; and neither concavity nor snubness is an affection of the nose accidentally, but in its own right—not as pale belongs to Callias or to a human being, because Callias, who happens to be a human being, is pale, but as

4 "Homonymously" means by sharing a name but not a meaning, as with a pun.

	GREEK	ENGLISH
		male belongs to animal and equal to quantity, and all the things said to belong in their own right.
	ταῦτα δ' ἐστὶν ἐν ὅσοις ὑπάρχει ἢ ὁ λόγος ἢ τοὔνομα οὗ ἐστὶ τοῦτο τὸ πάθος, καὶ μὴ ἐνδέχεται δηλῶσαι χωρίς, ὥσπερ τὸ λευκὸν ἄνευ τοῦ ἀνθρώπου ἐνδέχεται ἀλλ' οὐ τὸ θῆλυ ἄνευ τοῦ ζῴου· ὥστε τούτων τὸ τί ἦν εἶναι καὶ ὁρισμὸς ἢ οὐκ ἔστιν οὐδενὸς ἤ, εἰ ἔστιν, ἄλλως, καθάπερ εἰρήκαμεν. ἔστι δὲ ἀπορία καὶ ἑτέρα περὶ αὐτῶν.	These are the things in which there is present either the account or the name of that of which this is an affection, and which cannot be made clear separately, as pale can be without human being but female cannot be without animal. So either there is no essence and definition of any of these, or, if there is, it is in another way, as we have said. And there is also another puzzle about them.
	εἰ μὲν γὰρ τὸ αὐτό ἐστι σιμὴ ῥὶς καὶ κοίλη ῥίς, τὸ αὐτὸ ἔσται τὸ σιμὸν καὶ τὸ κοῖλον· εἰ δὲ μή, διὰ τὸ ἀδύνατον εἶναι εἰπεῖν τὸ σιμὸν ἄνευ τοῦ πράγματος οὗ ἐστὶ πάθος καθ' αὑτό (ἔστι γὰρ τὸ σιμὸν κοιλότης ἐν ῥινί), τὸ ῥῖνα σιμὴν εἰπεῖν ἢ οὐκ ἔστιν ἢ δὶς τὸ αὐτὸ ἔσται εἰρημένον, ῥὶς ῥὶς κοίλη (ἡ γὰρ ῥὶς ἡ σιμὴ ῥὶς ῥὶς κοίλη ἔσται), διὸ ἄτοπον τὸ ὑπάρχειν τοῖς τοιούτοις τὸ τί ἦν εἶναι· εἰ δὲ μή, εἰς ἄπειρον εἶσιν· ῥινὶ γὰρ ῥινὶ σιμῇ ἔτι ἄλλο ἐνέσται. [1031a] δῆλον τοίνυν ὅτι μόνης τῆς οὐσίας ἐστὶν ὁ ὁρισμός.	For if a snub nose and a concave nose are the same, snub and concave will be the same. But if not—because it is impossible to speak of the snub without the thing of which it is an affection in its own right (for snubness is concavity in a nose)—then either it is impossible to say "snub nose," or the same thing will have been said twice, "concave nose nose" (for the snub nose will be a concave nose nose). This is why it is absurd for things of this kind to have an essence. Otherwise there will be an infinite regress, for in a snub nose nose there will be yet another nose. [1031a] It is clear, then, that there is definition of substance alone.
1031a	εἰ γὰρ καὶ τῶν ἄλλων κατηγοριῶν, ἀνάγκη ἐκ προσθέσεως εἶναι, οἷον τοῦ †ποιοῦ† καὶ περιττοῦ· οὐ γὰρ ἄνευ ἀριθμοῦ, οὐδὲ τὸ θῆλυ ἄνευ ζῴου (τὸ δὲ ἐκ προσθέσεως λέγω ἐν οἷς συμβαίνει δὶς τὸ αὐτὸ λέγειν ὥσπερ ἐν τούτοις). εἰ δὲ τοῦτο ἀληθές, οὐδὲ συνδυαζομένων ἔσται, οἷον ἀριθμοῦ περιττοῦ· ἀλλὰ λανθάνει ὅτι οὐκ ἀκριβῶς λέγονται οἱ λόγοι. εἰ δ' εἰσὶ καὶ τούτων ὅροι, ἤτοι ἄλλον τρόπον εἰσὶν ἢ καθάπερ ἐλέχθη πολλαχῶς λεκτέον εἶναι τὸν ὁρισμὸν καὶ τὸ τί ἦν εἶναι, ὥστε ὠδὶ μὲν οὐδενὸς ἔσται ὁρισμὸς οὐδὲ τὸ τί ἦν εἶναι οὐδενὶ ὑπάρξει πλὴν ταῖς οὐσίαις, ὠδὶ δ' ἔσται.	For if there is definition of the other categories as well, it must come from addition, as with the snub and the odd; for the odd is not without number, nor the female without animal. (By "from addition" I mean the cases in which one ends up saying the same thing twice, as in these.) And if this is true, there will not be definitions of coupled terms either, such as "odd number"; but it goes unnoticed that the accounts are not stated precisely. If there are definitions of these too, then either they are definitions in another way, or, as we said, definition and essence must be said to be spoken of in many ways. So in one way there will be no definition of anything, and essence will belong to nothing except substances; in another way there will be.[5]
	ὅτι μὲν οὖν ἐστὶν ὁ ὁρισμὸς ὁ τοῦ τί ἦν εἶναι λόγος, καὶ τὸ τί ἦν εἶναι ἢ μόνων τῶν οὐσιῶν ἐστὶν ἢ μάλιστα καὶ πρώτως καὶ ἁπλῶς, δῆλον.	It is clear, then, that definition is the account of the essence, and that essence belongs either to substances alone or to them most of all, primarily, and without qualification.

5 The manuscripts read "the qualitative" here, probably a corruption; the argument needs an example like the snub.

IS A THING THE SAME AS ITS ESSENCE?

Primary things spoken of in their own right are one with their essence.

GREEK	ENGLISH
πότερον δὲ ταὐτόν ἐστιν ἢ ἕτερον τὸ τί ἦν εἶναι καὶ ἕκαστον, σκεπτέον. ἔστι γάρ τι πρὸ ἔργου πρὸς τὴν περὶ τῆς οὐσίας σκέψιν· ἕκαστόν τε γὰρ οὐκ ἄλλο δοκεῖ εἶναι τῆς ἑαυτοῦ οὐσίας, καὶ τὸ τί ἦν εἶναι λέγεται εἶναι ἡ ἑκάστου οὐσία.	We must consider whether each thing and its essence are the same or different. For this is of some use for our inquiry into substance, since each thing seems to be nothing other than its own substance, and the essence is said to be the substance of each thing.
ἐπὶ μὲν δὴ τῶν λεγομένων κατὰ συμβεβηκὸς δόξειεν ἂν ἕτερον εἶναι, οἷον λευκὸς ἄνθρωπος ἕτερον καὶ τὸ λευκῷ ἀνθρώπῳ εἶναι (εἰ γὰρ τὸ αὐτό, καὶ τὸ ἀνθρώπῳ εἶναι καὶ τὸ λευκῷ ἀνθρώπῳ τὸ αὐτό· τὸ αὐτὸ γὰρ ἄνθρωπος καὶ λευκὸς ἄνθρωπος, ὡς φασίν, ὥστε καὶ τὸ λευκῷ ἀνθρώπῳ καὶ τὸ ἀνθρώπῳ· ἢ οὐκ ἀνάγκη ὅσα κατὰ συμβεβηκὸς εἶναι ταὐτά, οὐ γὰρ ὡσαύτως τὰ ἄκρα γίγνεται ταὐτά· ἀλλ᾽ ἴσως γε ἐκεῖνο δόξειεν ἂν συμβαίνειν, τὰ ἄκρα γίγνεσθαι ταὐτὰ τὰ κατὰ συμβεβηκός, οἷον τὸ λευκῷ εἶναι καὶ τὸ μουσικῷ· δοκεῖ δὲ οὔ)· ἐπὶ δὲ τῶν καθ᾽ αὑτὰ λεγομένων ἆρ᾽ ἀνάγκη ταὐτὸ εἶναι, οἷον εἴ τινες εἰσὶν οὐσίαι ὧν ἕτεραι μὴ εἰσὶν οὐσίαι μηδὲ φύσεις ἕτεραι πρότεραι, οἵας φασὶ τὰς ἰδέας εἶναί τινες;	Now in the case of things spoken of accidentally, they would seem to be different. A pale human being, for instance, is different from being a pale human being. (For if they were the same, being a human being and being a pale human being would also be the same; for a human being and a pale human being are the same, as people say, so being a pale human being and being a human being would be the same too. Or is it not necessary that things that are accidentally the same be the same in this way, since the extremes do not become the same in the same manner? But perhaps it might seem to follow that the extremes, the accidental ones, do become the same—being pale and being musical, for instance. But it seems not.) In the case of things spoken of in their own right, on the other hand, must a thing and its essence be the same? Suppose, for instance, there are substances to which no other substances or natures are prior, such as some say the Forms are.
εἰ γὰρ ἔσται ἕτερον αὐτὸ τὸ ἀγαθὸν καὶ τὸ ἀγαθῷ εἶναι, καὶ ζῷον καὶ τὸ ζῴῳ, καὶ τὸ ὄντι καὶ τὸ ὄν, [1031b] ἔσονται ἄλλαι τε οὐσίαι καὶ φύσεις καὶ ἰδέαι παρὰ τὰς λεγομένας, καὶ πρότεραι οὐσίαι ἐκεῖναι, εἰ τὸ τί ἦν εἶναι οὐσία ἐστίν.	For if the good itself is going to be different from being good, and animal from being animal, and being from being being, [1031b] there will be other substances and natures and Forms beyond those that are spoken of, and those others will be prior substances, if the essence is substance.
[1031b] καὶ εἰ μὲν ἀπολελυμέναι ἀλλήλων, τῶν μὲν οὐκ ἔσται ἐπιστήμη τὰ δ᾽ οὐκ ἔσται ὄντα (λέγω δὲ τὸ ἀπολελύσθαι εἰ μήτε τῷ ἀγαθῷ αὐτῷ ὑπάρχει τὸ εἶναι ἀγαθῷ μήτε τούτῳ τὸ εἶναι ἀγαθόν)· ἐπιστήμη τε γὰρ ἑκάστου ἔστιν ὅταν τὸ τί ἦν ἐκείνῳ εἶναι γνῶμεν, καὶ ἐπὶ ἀγαθοῦ καὶ τῶν ἄλλων ὁμοίως ἔχει, ὥστε εἰ μηδὲ τὸ ἀγαθῷ εἶναι ἀγαθόν, οὐδὲ τὸ ὄντι ὂν οὐδὲ τὸ ἑνὶ ἕν· ὁμοίως δὲ πάντα ἔστιν ἢ οὐθὲν τὰ τί ἦν εἶναι, ὥστ᾽ εἰ μηδὲ τὸ ὄντι ὄν, οὐδὲ τῶν ἄλλων οὐδέν. ἔτι ᾧ μὴ ὑπάρχει ἀγαθῷ εἶναι, οὐκ ἀγαθόν.	And if they are detached from one another, there will be no knowledge of the one, and the others will not be beings. (By "detached" I mean if being good does not belong to the good itself, nor being good to this.) For we have knowledge of each thing when we know its essence. And it is the same with the good as with everything else: if being good is not good, then being being is not a being, nor being one one. And either all essences are alike or none is, so that if being being is not a being, neither is any of the others. Further, that to which being good does not belong is not good.

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ἀνάγκη ἄρα ἓν εἶναι τὸ ἀγαθὸν καὶ ἀγαθῷ εἶναι καὶ καλὸν καὶ καλῷ εἶναι, ⟨καὶ⟩ ὅσα μὴ κατ' ἄλλο λέγεται, ἀλλὰ καθ' αὑτὰ καὶ πρῶτα· καὶ γὰρ τοῦτο ἱκανὸν ἂν ὑπάρχῃ, κἂν μὴ ᾖ εἴδη, μᾶλλον δ' ἴσως κἂν ᾖ εἴδη (ἅμα δὲ δῆλον καὶ ὅτι εἴπερ εἰσὶν αἱ ἰδέαι οἵας τινές φασιν, οὐκ ἔσται τὸ ὑποκείμενον οὐσία· ταύτας γὰρ οὐσίας μὲν ἀναγκαῖον εἶναι, μὴ καθ' ὑποκειμένου δέ·

ἔσονται γὰρ κατὰ μέθεξιν).—ἔκ τε δὴ τούτων τῶν λόγων ἓν καὶ ταὐτὸ οὐ κατὰ συμβεβηκὸς αὐτὸ ἕκαστον καὶ τὸ τί ἦν εἶναι, καὶ ὅτι γε τὸ ἐπίστασθαι ἕκαστον τοῦτό ἐστι, τὸ τί ἦν εἶναι ἐπίστασθαι, ὥστε καὶ κατὰ τὴν ἔκθεσιν ἀνάγκη ἕν τι εἶναι ἄμφω (τὸ δὲ κατὰ συμβεβηκὸς λεγόμενον, οἷον τὸ μουσικὸν ἢ λευκόν, διὰ τὸ διττὸν σημαίνειν οὐκ ἀληθὲς εἰπεῖν ὡς ταὐτὸ τὸ τί ἦν εἶναι καὶ αὐτό· καὶ γὰρ ᾧ συμβέβηκε λευκὸν καὶ τὸ συμβεβηκός, ὥστ' ἔστι μὲν ὡς ταὐτόν, ἔστι δὲ ὡς οὐ ταὐτὸ τὸ τί ἦν εἶναι καὶ αὐτό· τῷ μὲν γὰρ ἀνθρώπῳ καὶ τῷ λευκῷ ἀνθρώπῳ οὐ ταὐτό, τῷ πάθει δὲ ταὐτό).

ἄτοπον δ' ἂν φανείη κἂν εἴ τις ἑκάστῳ ὄνομα θεῖτο τῶν τί ἦν εἶναι· ἔσται γὰρ καὶ παρ' ἐκεῖνο ἄλλο, οἷον τῷ τί ἦν εἶναι ἵππῳ τί ἦν εἶναι [ἵππῳ] ἕτερον. καίτοι τί κωλύει καὶ νῦν εἶναι ἔνια εὐθὺς τί ἦν εἶναι, εἴπερ οὐσία τὸ τί ἦν εἶναι; ἀλλὰ μὴν οὐ μόνον ἕν, ἀλλὰ καὶ ὁ λόγος ὁ αὐτὸς αὐτῶν, ὡς δῆλον καὶ ἐκ τῶν εἰρημένων· 1032a οὐ γὰρ κατὰ συμβεβηκὸς ἓν τὸ ἑνὶ εἶναι καὶ ἕν. ἔτι εἰ ἄλλο ἔσται, εἰς ἄπειρον εἶσιν· τὸ μὲν γὰρ ἔσται τί ἦν εἶναι τοῦ ἑνὸς τὸ δὲ τὸ ἕν, ὥστε καὶ ἐπ' ἐκείνων ὁ αὐτὸς ἔσται λόγος.

1032a ὅτι μὲν οὖν ἐπὶ τῶν πρώτων καὶ καθ' αὑτὰ λεγομένων τὸ ἑκάστῳ εἶναι καὶ ἕκαστον τὸ αὐτὸ καὶ ἕν ἐστι, δῆλον· οἱ δὲ σοφιστικοὶ ἔλεγχοι πρὸς τὴν θέσιν ταύτην φανερὸν ὅτι τῇ αὐτῇ λύονται λύσει καὶ εἰ ταὐτὸ Σωκράτης καὶ Σωκράτει εἶναι· οὐδὲν γὰρ διαφέρει οὔτε ἐξ ὧν ἐρωτήσειεν ἄν τις οὔτε ἐξ ὧν λύων ἐπιτύχοι. πῶς μὲν οὖν τὸ τί ἦν εἶναι ταὐτὸν καὶ πῶς οὐ ταὐτὸν ἑκάστῳ, εἴρηται.

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Necessarily, then, the good and being good are one, and the beautiful and being beautiful, and all the things that are not spoken of by reference to something else but in their own right and primarily. For this is enough, if it holds, even if there are no Forms—and perhaps all the more if there are Forms. (At the same time it is clear too that if the Forms are such as some say they are, the underlying subject will not be substance. For these must be substances, but not predicated of an underlying subject;

for then they would exist by participation.)—So from these arguments each thing itself and its essence are one and the same, and not accidentally; and also because to know each thing is precisely to know its essence. So even by setting them out one by one it is necessary that both be some one thing. (But of what is spoken of accidentally, such as the musical or the pale, because it signifies two things, it is not true to say that the essence and the thing itself are the same. For both that to which pale belongs accidentally and the accident are pale, so that in one way the essence and the thing itself are the same and in another way they are not: they are not the same for the human being and the pale human being, but they are the same for the affection.)

The absurdity would also be apparent if one were to give a name to each of the essences; for there will be yet another beside that one—beside the essence of horse, for instance, there will be a different essence. And yet what prevents some things from being essences straight off, right now, if the essence is substance? Moreover, not only are they one, but their account is also the same, as is clear from what has been said; 1032a for it is not accidentally that being one and the one are one. Further, if they are to be different, there will be an infinite regress: there will be the essence of the one, and the one, so that the same argument will apply to those too.

It is clear, then, that in the case of things that are primary and spoken of in their own right, being each thing and each thing are the same and one. And it is evident that the sophistical refutations brought against this thesis are resolved by the same solution as the question whether Socrates and being Socrates are the same; for there is no difference either in the premises from which

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someone might ask the question or in those from which one might succeed in resolving it. We have said, then, in what way the essence is the same as each thing and in what way it is not.

HOW THINGS COME TO BE

Everything that comes to be does so by nature, craft, or spontaneity, from matter.

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τῶν δὲ γιγνομένων τὰ μὲν φύσει γίγνεται τὰ δὲ τέχνῃ τὰ δὲ ἀπὸ ταὐτομάτου, πάντα δὲ τὰ γιγνόμενα ὑπό τέ τινος γίγνεται καὶ ἔκ τινος καὶ τί· τὸ δὲ τὶ λέγω καθ' ἑκάστην κατηγορίαν· ἢ γὰρ τόδε ἢ ποσὸν ἢ ποιὸν ἢ πού.

Of things that come to be, some come to be by nature, some by craft, and some spontaneously. And everything that comes to be comes to be by the agency of something, from something, and comes to be something. By "something" I mean in each of the categories: either a "this," or a quantity, or a quality, or somewhere.

αἱ δὲ γενέσεις αἱ μὲν φυσικαὶ αὗταί εἰσιν ὧν ἡ γένεσις ἐκ φύσεώς ἐστιν, τὸ δ' ἐξ οὗ γίγνεται, ἣν λέγομεν ὕλην, τὸ δὲ ὑφ' οὗ τῶν φύσει τι ὄντων, τὸ δὲ τὶ ἄνθρωπος ἢ φυτὸν ἢ ἄλλο τι τῶν τοιούτων, ἃ δὴ μάλιστα λέγομεν οὐσίας εἶναι —ἅπαντα δὲ τὰ γιγνόμενα ἢ φύσει ἢ τέχνῃ ἔχει ὕλην· δυνατὸν γὰρ καὶ εἶναι καὶ μὴ εἶναι ἕκαστον αὐτῶν, τοῦτο δ' ἐστὶν ἡ ἐν ἑκάστῳ ὕλη—καθόλου δὲ καὶ ἐξ οὗ φύσις καὶ καθ' ὃ φύσις (τὸ γὰρ γιγνόμενον ἔχει φύσιν, οἷον φυτὸν ἢ ζῷον) καὶ ὑφ' οὗ ἡ κατὰ τὸ εἶδος λεγομένη φύσις ἡ ὁμοειδής (ἀΰτη δὲ ἐν ἄλλῳ)· ἄνθρωπος γὰρ ἄνθρωπον γεννᾷ·—οὕτω μὲν οὖν γίγνεται τὰ γιγνόμενα διὰ τὴν φύσιν, αἱ δ' ἄλλαι γενέσεις λέγονται ποιήσεις.

Natural comings-to-be are those of things whose coming to be is from nature. That from which they come to be is what we call matter; that by which they come to be is one of the things that exist by nature; and what they come to be is a human being or a plant or something else of that kind, which are just the things we say are substances most of all. (Everything that comes to be, whether by nature or by craft, has matter; for each of them is capable both of being and of not being, and this capacity is the matter in each.) In general, both that from which they come is nature and that in accordance with which they come is nature, for what comes to be has a nature, as a plant or an animal does; and that by which they come is the nature spoken of as form, the same in form as what comes to be, though present in another thing —for a human being begets a human being. This, then, is how the things that come to be through nature come to be; the other comings-to-be are called makings.

πᾶσαι δὲ εἰσὶν αἱ ποιήσεις ἢ ἀπὸ τέχνης ἢ ἀπὸ δυνάμεως ἢ ἀπὸ διανοίας. τούτων δέ τινες γίγνονται καὶ ἀπὸ ταὐτομάτου καὶ ἀπὸ τύχης παραπλησίως ὥσπερ ἐν τοῖς ἀπὸ φύσεως γιγνομένοις· ἔνια γὰρ κἀκεῖ ταὐτὰ καὶ ἐκ σπέρματος γίγνεται καὶ ἄνευ σπέρματος. περὶ μὲν οὖν τούτων ὕστερον ἐπισκεπτέον, [1032b] ἀπὸ τέχνης δὲ γίγνεται ὅσων τὸ εἶδος ἐν τῇ ψυχῇ (εἶδος δὲ λέγω τὸ τί ἦν εἶναι ἑκάστου καὶ τὴν πρώτην οὐσίαν)· καὶ γὰρ τῶν ἐναντίων τρόπον τινὰ τὸ αὐτὸ εἶδος· τῆς γὰρ στερήσεως οὐσία ἡ οὐσία ἡ ἀντικειμένη, οἷον ὑγίεια νόσου, ἐκείνης γὰρ ἀπουσία ἡ νόσος, ἡ δὲ ὑγίεια ὁ ἐν τῇ ψυχῇ λόγος καὶ ἡ ἐπιστήμη.

All makings are from craft, or from a capacity, or from thought. Some of them also come about spontaneously and by luck, much as happens among the things that come to be from nature; for there too some of the same things come to be both from seed and without seed. These we must examine later. [1032b] From craft come the things whose form is in the soul. (By "form" I mean the essence of each thing and its primary substance.) For in a way even contraries have the same form, since the substance of a privation is the opposed substance —health, for instance, is the substance of disease,

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		since disease is the absence of health. And health is the account in the soul, and the knowledge.
1032b	γίγνεται δὲ τὸ ὑγιὲς νοήσαντος οὕτως· ἐπειδὴ τοδὶ ὑγίεια, ἀνάγκη εἰ ὑγιὲς ἔσται τοδὶ ὑπάρξαι, οἷον ὁμαλότητα, εἰ δὲ τοῦτο, θερμότητα· καὶ οὕτως ἀεὶ νοεῖ, ἕως ἂν ἀγάγῃ εἰς τοῦτο ὃ αὐτὸς δύναται ἔσχατον ποιεῖν. εἶτα ἤδη ἡ ἀπὸ τούτου κίνησις ποίησις καλεῖται, ἡ ἐπὶ τὸ ὑγιαίνειν. ὥστε συμβαίνει τρόπον τινὰ τὴν ὑγίειαν ἐξ ὑγιείας γίγνεσθαι καὶ τὴν οἰκίαν ἐξ οἰκίας, τῆς ἄνευ ὕλης τὴν ἔχουσαν ὕλην· ἡ γὰρ ἰατρικὴ ἐστι καὶ ἡ οἰκοδομικὴ τὸ εἶδος τῆς ὑγιείας καὶ τῆς οἰκίας, λέγω δὲ οὐσίαν ἄνευ ὕλης τὸ τί ἦν εἶναι.	What is healthy comes to be when the doctor thinks as follows: since health is this, then if the patient is to be healthy, this must be present—evenness, for instance—and if this, then heat. And he keeps thinking in this way until he arrives at the last thing, something he can himself make. Then the motion from this point onward, toward being healthy, is called making. So it turns out that in a way health comes from health and a house from a house—the one with matter from the one without matter. For medicine and housebuilding are the form of health and of the house; and by substance without matter I mean the essence.
	τῶν δὴ γενέσεων καὶ κινήσεων ἡ μὲν νόησις καλεῖται ἡ δὲ ποίησις, ἡ μὲν ἀπὸ τῆς ἀρχῆς καὶ τοῦ εἴδους νόησις ἡ δ' ἀπὸ τοῦ τελευταίου τῆς νοήσεως ποίησις. ὁμοίως δὲ καὶ τῶν ἄλλων τῶν μεταξὺ ἕκαστον γίγνεται. λέγω δ' οἷον εἰ ὑγιανεῖ, δέοι ἂν ὁμαλυνθῆναι. τί οὖν ἐστὶ τὸ ὁμαλυνθῆναι; τοδί, τοῦτο δ' ἔσται εἰ θερμανθήσεται. τοῦτο δὲ τί ἐστι; τοδί. ὑπάρχει δὲ τοδὶ δυνάμει· τοῦτο δὲ ἤδη ἐπ' αὐτῷ.	Of comings-to-be and motions, one part is called thinking and the other making: the part that starts from the starting point and the form is thinking, and the part that starts from the last step of thinking is making. And each of the other, intermediate things comes about in the same way. I mean, for instance: if he is to be healthy, he would have to be made even. What, then, is being made even? This; and this will come about if he is heated. And what is that? This. And this is present potentially, and it is already up to him.
	τὸ δὴ ποιοῦν καὶ ὅθεν ἄρχεται ἡ κίνησις τοῦ ὑγιαίνειν, ἂν μὲν ἀπὸ τέχνης, τὸ εἶδός ἐστι τὸ ἐν τῇ ψυχῇ, ἐὰν δ' ἀπὸ ταὐτομάτου, ἀπὸ τούτου ὅ ποτε τοῦ ποιεῖν ἄρχει τῷ ποιοῦντι ἀπὸ τέχνης, ὥσπερ καὶ ἐν τῷ ἰατρεύειν ἴσως ἀπὸ τοῦ θερμαίνειν ἡ ἀρχή (τοῦτο δὲ ποιεῖ τῇ τρίψει)· ἡ θερμότης τοίνυν ἡ ἐν τῷ σώματι ἢ μέρος τῆς ὑγιείας ἢ ἕπεταί τι αὐτῇ τοιοῦτον ὅ ἐστι μέρος τῆς ὑγιείας, ἢ διὰ πλειόνων· τοῦτο δ' ἔσχατόν ἐστι, τὸ ποιοῦν τὸ μέρος τῆς ὑγιείας,—καὶ τῆς οἰκίας (ὅἷον οἱ λίθοι) καὶ τῶν ἄλλων· ὥστε, καθάπερ λέγεται, ἀδύνατον γενέσθαι εἰ μηδὲν προϋπάρχοι. ὅτι μὲν οὖν τι μέρος ἐξ ἀνάγκης ὑπάρξει φανερόν· ἡ γὰρ ὕλη μέρος (ἐνυπάρχει γὰρ καὶ γίγνεται αὕτη).	So the thing that makes, and from which the motion of becoming healthy begins, is the form in the soul, if it comes from craft. If it comes about spontaneously, it begins from whatever it is that begins the making for the person who makes by craft—just as in healing, perhaps, the starting point is heating, which he produces by rubbing. The heat in the body, then, is either a part of health, or something follows it which is of this kind—a part of health—either directly or through several steps. And this last thing, the thing that makes the part of health, is a part—and likewise the stones are a part of the house, and so with the other cases. So, as the saying goes, it is impossible for anything to come to be if nothing pre-exists. It is evident, then, that some part must be present of necessity; for the matter is a part, since it is present in the thing and it is what becomes something.
1033a	ἀλλ' ἆρα καὶ τῶν ἐν τῷ λόγῳ; ἀμφοτέρως δὴ λέγομεν τοὺς χαλκοῦς κύκλους τί εἰσι, καὶ τὴν ὕλην λέγοντες ὅτι χαλκός, καὶ τὸ εἶδος ὅτι σχῆμα τοιόνδε, καὶ τοῦτό ἐστι τὸ γένος εἰς ὃ πρῶτον τίθεται.	But is there also a part of what is in the account? In fact we say what bronze circles are in both ways: we say of the matter that it is bronze, and of the

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	form that it is such-and-such a figure; and this figure is the genus in which it is first placed.
ὁ δὴ χαλκοῦς κύκλος ἔχει ἐν τῷ λόγῳ τὴν ὕλην.—ἐξ οὗ δὲ ὡς ὕλης γίγνεται ἔνια λέγεται, ὅταν γένηται, οὐκ ἐκεῖνο ἀλλ᾽ ἐκείνινον, οἷον ὁ ἀνδριὰς οὐ λίθος ἀλλὰ λίθινος, ὁ δὲ ἄνθρωπος ὁ ὑγιαίνων οὐ λέγεται ἐκεῖνο ἐξ οὗ· αἴτιον δὲ ὅτι γίγνεται ἐκ τῆς στερήσεως καὶ τοῦ ὑποκειμένου, ὃ λέγομεν τὴν ὕλην (οἷον καὶ ὁ ἄνθρωπος καὶ ὁ κάμνων γίγνεται ὑγιής), μᾶλλον μέντοι λέγεται γίγνεσθαι ἐκ τῆς στερήσεως, οἷον ἐκ κάμνοντος ὑγιὴς ἢ ἐξ ἀνθρώπου, διὸ κάμνων μὲν ὁ ὑγιὴς οὐ λέγεται, ἄνθρωπος δέ, καὶ ὁ ἄνθρωπος ὑγιής·	So the bronze circle has its matter in its account.—As for that from which, as matter, some things come to be, when they have come to be they are called not "that" but "that-en." A statue, for instance, is called not stone but stonen. But a human being who becomes healthy is not called by the name of that from which he came. The reason is that he comes to be both from the privation and from the underlying subject, which we call matter (for instance, both the human being and the sick person become healthy); but he is said to come to be from the privation rather than from the subject—healthy from sick, rather than from human being. That is why the healthy person is not called sick, but is called a human being, and the human being is called healthy.[6]
ὧν δ᾽ ἡ στέρησις ἄδηλος καὶ ἀνώνυμος, οἷον ἐν χαλκῷ σχήματος ὁποιουοῦν ἢ ἐν πλίνθοις καὶ ξύλοις οἰκίας, ἐκ τούτων δοκεῖ γίγνεσθαι ὡς ἐκεῖ ἐκ κάμνοντος· διὸ ὥσπερ οὐδ᾽ ἐκεῖ ἐξ οὗ τοῦτο, ἐκεῖνο οὐ λέγεται, οὐδ᾽ ἐνταῦθα ὁ ἀνδριὰς ξύλον, ἀλλὰ παράγεται ξύλινος, [οὐ ξύλον,] καὶ χαλκοῦς ἀλλ᾽ οὐ χαλκός, καὶ λίθινος ἀλλ᾽ οὐ λίθος, καὶ ἡ οἰκία πλινθίνη ἀλλ᾽ οὐ πλίνθοι, ἐπεὶ οὐδὲ ὡς ἐκ ξύλου γίγνεται ἀνδριὰς ἢ ἐκ πλίνθων οἰκία, ἐάν τις ἐπιβλέπῃ σφόδρα, οὐκ ἂν ἁπλῶς εἴπειεν, διὰ τὸ δεῖν μεταβάλλοντος γίγνεσθαι ἐξ οὗ, ἀλλ᾽ οὐχ ὑπομένοντος.	But where the privation is obscure and has no name—in bronze, for instance, the privation of some particular shape, or in bricks and timbers the privation of a house—the thing seems to come to be from these in the way that, in the other case, the healthy comes from the sick. So just as there a thing is not called by the name of that from which it came, so here the statue is not called wood but by a derived word, "wooden," and "bronze" in the sense of made of bronze but not "bronze," and "stonen" but not "stone," and the house is "brick-built" but not "bricks." For if one looks closely, one would not say without qualification that a statue comes to be from wood or a house from bricks, since that from which a thing comes to be must change, not remain.[7]
διὰ μὲν οὖν τοῦτο οὕτως λέγεται.	This, then, is why we speak in this way.

FORM DOES NOT COME TO BE

The maker makes the composite, not the form, so separate Forms are useless for generation.

GREEK	ENGLISH
ἐπεὶ δὲ ὑπό τινός τε γίγνεται τὸ γιγνόμενον (τοῦτο δὲ λέγω ὅθεν ἡ ἀρχὴ τῆς γενέσεώς ἐστι) καὶ ἔκ τινος (ἔστω δὲ μὴ ἡ στέρησις τοῦτο ἀλλ᾽ ἡ ὕλη· ἤδη γὰρ διώρισται ὃν τρόπον τοῦτο λέγομεν) καὶ τὶ γίγνεται (τοῦτο δ᾽ ἐστὶν ἢ σφαῖρα ἢ κύκλος ἢ ὅ τι ἔτυχε τῶν ἄλλων), ὥσπερ οὐδὲ τὸ ὑποκείμενον ποιεῖ, τὸν χαλκόν, οὕτως οὐδὲ τὴν σφαῖραν,	What comes to be comes to be by the agency of something (by this I mean that from which the beginning of the coming-to-be comes), and from something (let this be not the privation but the matter, for we have already distinguished in what sense we say this), and it comes to be something (a

6 Aristotle points to Greek material adjectives (like English "wooden," "golden"); "stonen" imitates the form.
7 Greek distinguishes *chalkos* ("bronze," the stuff) from the adjective *chalkous* ("made of bronze"), which English cannot mark.

GREEK

ENGLISH

εἰ μὴ κατὰ συμβεβηκὸς ὅτι ἡ χαλκῆ σφαῖρα σφαῖρά ἐστιν ἐκείνην δὲ ποιεῖ.

sphere, or a circle, or whatever else it may be). Now just as the maker does not make the underlying subject, the bronze, so he does not make the sphere either, except accidentally, because the bronze sphere is a sphere and he makes that.

τὸ γὰρ τόδε τι ποιεῖν ἐκ τοῦ ὅλως ὑποκειμένου τόδε τι ποιεῖν ἐστίν (λέγω δ' ὅτι τὸν χαλκὸν στρογγύλον ποιεῖν ἐστὶν οὐ τὸ στρογγύλον ἢ τὴν σφαῖραν ποιεῖν ἀλλ' ἕτερόν τι, οἷον τὸ εἶδος τοῦτο ἐν ἄλλῳ· εἰ γὰρ ποιεῖ, ἔκ τινος ἂν ποιοίη ἄλλου, τοῦτο γὰρ ὑπέκειτο· 1033b οἷον ποιεῖ χαλκῆν σφαῖραν, τοῦτο δὲ οὕτως ὅτι ἐκ τουδί, ὅ ἐστι χαλκός, τοδὶ ποιεῖ, ὅ ἐστι σφαῖρα)· εἰ οὖν καὶ τοῦτο ποιεῖ αὐτό, δῆλον ὅτι ὡσαύτως ποιήσει, καὶ βαδιοῦνται αἱ γενέσεις εἰς ἄπειρον. φανερὸν ἄρα ὅτι οὐδὲ τὸ εἶδος, ἢ ὁτιδήποτε χρὴ καλεῖν τὴν ἐν τῷ αἰσθητῷ μορφήν, οὐ γίγνεται, οὐδ' ἔστιν αὐτοῦ γένεσις, οὐδὲ τὸ τί ἦν εἶναι (τοῦτο γάρ ἐστιν ὃ ἐν ἄλλῳ γίγνεται ἢ ὑπὸ τέχνης ἢ ὑπὸ φύσεως ἢ δυνάμεως).

For to make a "this" is to make a "this" out of the underlying subject in the full sense. (I mean that to make the bronze round is not to make the round or the sphere, but something else, namely this form in something else. For if one made the form, one would make it from something else, since this was assumed; 1033b for instance, one makes a bronze sphere, and one makes it in the sense that from this, which is bronze, one makes this, which is a sphere.) So if one makes this too, clearly one will make it in the same way, and the comings-to-be will go on to infinity. It is evident, then, that the form too—or whatever one should call the shape in the perceptible thing—does not come to be, and there is no coming-to-be of it; nor does the essence come to be. For this is what comes to be in something else, whether by craft or by nature or by a capacity.

1033b τὸ δὲ χαλκῆν σφαῖραν εἶναι ποιεῖ· ποιεῖ γὰρ ἐκ χαλκοῦ καὶ σφαίρας· εἰς τοδὶ γὰρ τὸ εἶδος ποιεῖ, καὶ ἔστι τοῦτο σφαῖρα χαλκῆ. τοῦ δὲ σφαίρᾳ εἶναι ὅλως εἰ ἔσται γένεσις, ἔκ τινος τὶ ἔσται. δεήσει γὰρ διαιρετὸν εἶναι ἀεὶ τὸ γιγνόμενον, καὶ εἶναι τὸ μὲν τόδε τὸ δὲ τόδε, λέγω δ' ὅτι τὸ μὲν ὕλην τὸ δὲ εἶδος. εἰ δή ἐστι σφαῖρα τὸ ἐκ τοῦ μέσου σχῆμα ἴσον, τούτου τὸ μὲν ἐν ᾧ ἔσται ὃ ποιεῖ, τὸ δ' ἐν ἐκείνῳ, τὸ δὲ ἅπαν τὸ γεγονός, οἷον ἡ χαλκῆ σφαῖρα.

But the maker does make there be a bronze sphere; for he makes it out of bronze and sphere, since he makes the form into this, and this is a bronze sphere. But if there is to be a coming-to-be of being a sphere in general, something will come from something. For what comes to be will always have to be divisible, and one part will have to be this and the other that—I mean one part matter and the other form. So if a sphere is the figure whose points are equidistant from the center, one part of it will be that in which what he makes will be, another will be what is in that, and the whole will be the thing that has come to be, such as the bronze sphere.

φανερὸν δὴ ἐκ τῶν εἰρημένων ὅτι τὸ μὲν ὡς εἶδος ἢ οὐσία λεγόμενον οὐ γίγνεται, ἡ δὲ σύνολος ἡ κατὰ ταύτην λεγομένη γίγνεται, καὶ ὅτι ἐν παντὶ τῷ γεννωμένῳ ὕλη ἔνεστι, καὶ ἔστι τὸ μὲν τόδε τὸ δὲ τόδε.—πότερον οὖν ἔστι τις σφαῖρα παρὰ τάσδε ἢ οἰκία παρὰ τὰς πλίνθους; ἢ οὐδ' ἄν ποτε ἐγίγνετο, εἰ οὕτως ἦν, τόδε τι, ἀλλὰ τὸ τοιόνδε σημαίνει, τόδε δὲ καὶ ὡρισμένον οὐκ ἔστιν, ἀλλὰ ποιεῖ καὶ γεννᾷ ἐκ τοῦδε τοιόνδε, καὶ ὅταν γεννηθῇ, ἔστι τόδε τοιόνδε; τὸ δὲ ἅπαν τόδε, Καλλίας ἢ Σωκράτης, ἐστὶν ὥσπερ ἡ σφαῖρα ἡ χαλκῆ ἡδί, ὁ δ' ἄνθρωπος καὶ τὸ ζῷον ὥσπερ σφαῖρα χαλκῆ ὅλως.

It is evident, then, from what has been said, that what is called form or substance does not come to be, whereas the composite, which is named after it, does come to be; and that in everything that is generated there is matter, and one part is this, the other that.—Is there, then, some sphere beyond these spheres here, or a house beyond the bricks? Or rather, if it were so, no "this" would ever have come to be. Instead, the form signifies a "such," and is not a "this" and determinate; but the maker makes or begets a "such" out of a "this," and when it has been begotten it is a "this such." The whole

GREEK	ENGLISH
	"this," Callias or Socrates, is like this bronze sphere here, while human being and animal are like bronze sphere in general.
φανερὸν ἄρα ὅτι ἡ τῶν εἰδῶν αἰτία, ὡς εἰώθασί τινες λέγειν τὰ εἴδη, εἰ ἔστιν ἄττα παρὰ τὰ καθ' ἕκαστα, πρός γε τὰς γενέσεις καὶ τὰς οὐσίας οὐθὲν χρησίμη· οὐδ' ἂν εἶεν διά γε ταῦτα οὐσίαι καθ' αὑτάς.	It is evident, then, that the causation by the Forms, in the way some are accustomed to speak of the Forms—if they are some things beyond the particulars—is of no use, at any rate with regard to comings-to-be and substances; nor would they be substances in their own right, at least for these reasons.
ἐπὶ μὲν δή τινων καὶ φανερὸν ὅτι τὸ γεννῶν τοιοῦτον μὲν οἷον τὸ γεννώμενον, οὐ μέντοι τὸ αὐτό γε, οὐδὲ ἓν τῷ ἀριθμῷ ἀλλὰ τῷ εἴδει, οἷον ἐν τοῖς φυσικοῖς—ἄνθρωπος γὰρ ἄνθρωπον γεννᾷ—ἂν μή τι παρὰ φύσιν γένηται, οἷον ἵππος ἡμίονον (καὶ ταῦτα δὲ ὁμοίως· ὃ γὰρ ἂν κοινὸν εἴη ἐφ' ἵππου καὶ ὄνου οὐκ ὠνόμασται, τὸ ἐγγύτατα γένος, εἴη δ' ἂν ἄμφω ἴσως, οἷον ἡμίονος). 1034a ὥστε φανερὸν ὅτι οὐθὲν δεῖ ὡς παράδειγμα εἶδος κατασκευάζειν (μάλιστα γὰρ ἂν ἐν τούτοις ἐπεζητοῦντο· οὐσίαι γὰρ αἱ μάλιστα αὗται) ἀλλὰ ἱκανὸν τὸ γεννῶν ποιῆσαι καὶ τοῦ εἴδους αἴτιον εἶναι ἐν τῇ ὕλῃ.	In some cases it is even evident that what begets is of the same kind as what is begotten, though not the same, nor one in number, but one in form—as in natural things, for a human being begets a human being—unless something comes about contrary to nature, as when a horse begets a mule. (Even these cases are similar; for what would be common to horse and donkey, the genus immediately above them, has not been named, but it would perhaps be both, something like a mule.) 1034a So it is evident that there is no need to set up a Form as a paradigm (for these would be sought especially in these cases, since these are substances most of all). Rather, the begetter is enough to make the thing and to be the cause of the form in the matter.
1034a τὸ δ' ἅπαν ἤδη, τὸ τοιόνδε εἶδος ἐν ταῖσδε ταῖς σαρξὶ καὶ ὀστοῖς, Καλλίας καὶ Σωκράτης· καὶ ἕτερον μὲν διὰ τὴν ὕλην (ἑτέρα γάρ), ταὐτὸ δὲ τῷ εἴδει (ἄτομον γὰρ τὸ εἶδος).	The whole, then—such-and-such a form in this flesh and these bones—is Callias or Socrates. And they are different because of their matter, since that is different, but the same in form, for the form is indivisible.

CRAFT, SPONTANEITY AND SEED

Why some things arise both by craft and spontaneously, and how like produces like.

GREEK	ENGLISH
ἀπορήσειε δ' ἄν τις διὰ τί τὰ μὲν γίγνεται καὶ τέχνῃ καὶ ἀπὸ ταὐτομάτου, οἷον ὑγίεια, τὰ δ' οὔ, οἷον οἰκία. αἴτιον δὲ ὅτι τῶν μὲν ἡ ὕλη ἡ ἄρχουσα τῆς γενέσεως ἐν τῷ ποιεῖν καὶ γίγνεσθαί τι τῶν ἀπὸ τέχνης, ἐν ᾗ ὑπάρχει τι μέρος τοῦ πράγματος,—ἡ μὲν τοιαύτη ἐστὶν οἵα κινεῖσθαι ὑφ' αὑτῆς ἡ δ' οὔ, καὶ ταύτης ἡ μὲν ὠδὶ οἵα τε ἡ δὲ ἀδύνατος· πολλὰ γὰρ δυνατὰ μὲν ὑφ' αὑτῶν κινεῖσθαι ἀλλ' οὐχ ὠδί, οἷον ὀρχήσασθαι. ὅσων οὖν τοιαύτη ἡ ὕλη, οἷον οἱ λίθοι, ἀδύνατον ὠδὶ κινηθῆναι εἰ μὴ ὑπ' ἄλλου, ὠδὶ μέντοι ναί—καὶ τὸ πῦρ.	One might raise the puzzle why some things come to be both by craft and spontaneously, health for instance, while others do not, a house for instance. The reason is that in some cases the matter that begins the coming-to-be in the making and coming-to-be of things produced by craft, the matter in which some part of the thing is present, is of a kind that can be moved by itself, while in other cases it is not; and of the matter that can be, some can be moved in this particular way and some cannot. For many things can move themselves, but not in this particular way—to dance, for in-

GREEK

διὰ τοῦτο τὰ μὲν οὐκ ἔσται ἄνευ τοῦ ἔχοντος τὴν τέχνην τὰ δὲ ἔσται· ὑπὸ γὰρ τούτων κινηθήσεται τῶν οὐκ ἐχόντων τὴν τέχνην, κινεῖσθαι δὲ δυναμένων αὐτῶν ὑπ' ἄλλων οὐκ ἐχόντων τὴν τέχνην ἢ ἐκ μέρους. δῆλον δ' ἐκ τῶν εἰρημένων καὶ ὅτι τρόπον τινὰ πάντα γίγνεται ἐξ ὁμωνύμου, ὥσπερ τὰ φύσει, ἢ ἐκ μέρους ὁμωνύμου (οἷον ἡ οἰκία ἐξ οἰκίας, ᾗ ὑπὸ νοῦ· ἡ γὰρ τέχνη τὸ εἶδος) [ἢ ἐκ μέρους] ἢ ἔχοντός τι μέρος,—ἐὰν μὴ κατὰ συμβεβηκὸς γίγνηται· τὸ γὰρ αἴτιον τοῦ ποιεῖν πρῶτον καθ' αὑτὸ μέρος.

θερμότης γὰρ ἡ ἐν τῇ κινήσει θερμότητα ἐν τῷ σώματι ἐποίησεν· αὕτη δὲ ἐστὶν ἢ ὑγίεια ἢ μέρος, ἢ ἀκολουθεῖ αὐτῇ μέρος τι τῆς ὑγιείας ἢ αὐτὴ ἡ ὑγίεια· διὸ καὶ λέγεται ποιεῖν, ὅτι ἐκεῖνο ποιεῖ [τὴν ὑγίειαν] ᾧ ἀκολουθεῖ καὶ συμβέβηκε [θερμότης]. ὥστε, ὥσπερ ἐν τοῖς συλλογισμοῖς, πάντων ἀρχὴ ἡ οὐσία· ἐκ γὰρ τοῦ τί ἐστιν οἱ συλλογισμοί εἰσιν, ἐνταῦθα δὲ αἱ γενέσεις. ὁμοίως δὲ καὶ τὰ φύσει συνιστάμενα τούτοις ἔχει.

τὸ μὲν γὰρ σπέρμα ποιεῖ ὥσπερ τὰ ἀπὸ τέχνης (ἔχει γὰρ δυνάμει τὸ εἶδος, 1034b καὶ ἀφ' οὗ τὸ σπέρμα, ἐστί πως ὁμώνυμον—οὐ γὰρ πάντα οὕτω δεῖ ζητεῖν ὡς ἐξ ἀνθρώπου ἄνθρωπος· καὶ γὰρ γυνὴ ἐξ ἀνδρός—ἐὰν μὴ πήρωμα ᾖ· διὸ ἡμίονος οὐκ ἐξ ἡμιόνου)· ὅσα δὲ ἀπὸ ταὐτομάτου ὥσπερ ἐκεῖ γίγνεται, ὅσων ἡ ὕλη δύναται καὶ ὑφ' αὑτῆς κινεῖσθαι ταύτην τὴν κίνησιν ἣν τὸ σπέρμα κινεῖ· ὅσων δὲ μή, ταῦτα ἀδύνατα γίγνεσθαι ἄλλως πως ἢ ἐξ αὐτῶν.—οὐ μόνον δὲ περὶ τῆς οὐσίας ὁ λόγος δηλοῖ τὸ μὴ γίγνεσθαι τὸ εἶδος, ἀλλὰ περὶ πάντων ὁμοίως τῶν πρώτων κοινὸς ὁ λόγος, οἷον ποσοῦ ποιοῦ καὶ τῶν ἄλλων κατηγοριῶν.

1034b γίγνεται γὰρ ὥσπερ ἡ χαλκῆ σφαῖρα ἀλλ' οὐ σφαῖρα οὐδὲ χαλκός, καὶ ἐπὶ χαλκοῦ, εἰ γίγνεται (ἀεὶ γὰρ δεῖ προϋπάρχειν τὴν ὕλην καὶ τὸ εἶδος), οὕτως καὶ ἐπὶ τοῦ τί

ENGLISH

stance. Things whose matter is of this kind, such as stones, cannot be moved in this particular way except by something else; but in that other way they can—and so with fire.

This is why some things will not exist without someone who has the craft, while others will. For they will be moved by things that do not have the craft but can themselves be moved by other things that do not have the craft, or from a part. It is also clear from what has been said that in a way everything comes to be from something that shares its name, as natural things do, or from a part that shares its name (as a house comes from a house, insofar as it comes from intellect, for the craft is the form), or from something that has a part—unless it comes to be accidentally. For the cause of the making, the primary cause in its own right, is a part.

For the heat in the motion produced heat in the body; and this is either health or a part of it, or some part of health follows it, or health itself does. That is also why it is said to make health: because that which heat follows and accompanies makes it. So, just as in syllogisms, substance is the starting point of everything: syllogisms proceed from the what-it-is, and here comings-to-be do. And things constituted by nature are in the same position as these.

For the seed makes things in the way the products of craft are made. It has the form potentially, 1034b and that from which the seed comes shares its name in a way—for we must not expect everything to be as a human being comes from a human being, since a woman too comes from a man—unless there is a deformity; that is why a mule does not come from a mule. Things that come to be spontaneously, as in the other case, are those whose matter can also be moved by itself with the motion that the seed imparts; things whose matter cannot do this cannot come to be in any other way than from parents of their own kind.—And it is not only concerning substance that the argument shows that the form does not come to be; the argument applies in common to all the primary things alike, such as quantity, quality, and the other categories.

For just as the bronze sphere comes to be, but not the sphere or the bronze—and so with bronze, if it comes to be, for the matter and the form must al-

GREEK	ENGLISH
ἐστι καὶ ἐπὶ τοῦ ποιοῦ καὶ ποσοῦ καὶ τῶν ἄλλων ὁμοίως κατηγοριῶν· οὐ γὰρ γίγνεται τὸ ποιὸν ἀλλὰ τὸ ποιὸν ξύλον, οὐδὲ τὸ ποσὸν ἀλλὰ τὸ ποσὸν ξύλον ἢ ζῷον. ἀλλ' ἴδιον τῆς οὐσίας ἐκ τούτων λαβεῖν ἔστιν ὅτι ἀναγκαῖον προϋπάρχειν ἑτέραν οὐσίαν ἐντελεχείᾳ οὖσαν ἢ ποιεῖ, οἷον ζῷον εἰ γίγνεται ζῷον· ποιὸν δ' ἢ ποσὸν οὐκ ἀνάγκη ἀλλ' ἢ δυνάμει μόνον.	ways pre-exist—so it is with the what-it-is, and likewise with quality and quantity and the other categories. For it is not the quality that comes to be but the wood of that quality, nor the quantity but the wood or the animal of that quantity. But we can gather from these points what is peculiar to substance: that there must pre-exist another substance, existing in actuality, which makes it—an animal, for instance, if an animal comes to be. With a quality or a quantity this is not necessary; it need pre-exist only potentially.

PARTS OF THE ACCOUNT AND PARTS OF THE THING

Parts of the form are prior to the whole; material parts are posterior.

GREEK	ENGLISH
ἐπεὶ δὲ ὁ ὁρισμὸς λόγος ἐστί, πᾶς δὲ λόγος μέρη ἔχει, ὡς δὲ ὁ λόγος πρὸς τὸ πρᾶγμα, καὶ τὸ μέρος τοῦ λόγου πρὸς τὸ μέρος τοῦ πράγματος ὁμοίως ἔχει, ἀπορεῖται ἤδη πότερον δεῖ τὸν τῶν μερῶν λόγον ἐνυπάρχειν ἐν τῷ τοῦ ὅλου λόγῳ ἢ οὔ. ἐπ' ἐνίων μὲν γὰρ φαίνονται ἐνόντες ἐνίων δ' οὔ. τοῦ μὲν γὰρ κύκλου ὁ λόγος οὐκ ἔχει τὸν τῶν τμημάτων, ὁ δὲ τῆς συλλαβῆς ἔχει τὸν τῶν στοιχείων· καίτοι διαιρεῖται καὶ ὁ κύκλος εἰς τὰ τμήματα ὥσπερ καὶ ἡ συλλαβὴ εἰς τὰ στοιχεῖα. ἔτι δὲ εἰ πρότερα τὰ μέρη τοῦ ὅλου, τῆς δὲ ὀρθῆς ἡ ὀξεῖα μέρος καὶ ὁ δάκτυλος τοῦ ζῴου, πρότερον ἂν εἴη ἡ ὀξεῖα τῆς ὀρθῆς καὶ ὁ δάκτυλος τοῦ ἀνθρώπου.	Since a definition is an account, and every account has parts, and as the account is to the thing, so the part of the account is to the part of the thing, the puzzle now arises whether the account of the parts must be present in the account of the whole or not. In some cases they appear to be present, in others not. The account of the circle does not contain that of the segments, but the account of the syllable contains that of the letters; and yet the circle is divided into its segments just as the syllable is divided into its letters. Further, if the parts are prior to the whole, and the acute angle is a part of the right angle and the finger a part of the animal, then the acute angle would be prior to the right angle and the finger to the human being.[8]
δοκεῖ δ' ἐκεῖνα εἶναι πρότερα· τῷ λόγῳ γὰρ λέγονται ἐξ ἐκείνων, καὶ τῷ εἶναι δὲ ἄνευ ἀλλήλων πρότερα.—ἢ πολλαχῶς λέγεται τὸ μέρος, ὧν εἷς μὲν τρόπος τὸ μετροῦν κατὰ τὸ ποσόν—ἀλλὰ τοῦτο μὲν ἀφείσθω· ἐξ ὧν δὲ ἡ οὐσία ὡς μερῶν, τοῦτο σκεπτέον. 1035a εἰ οὖν ἐστὶ τὸ μὲν ὕλη τὸ δὲ εἶδος τὸ δ' ἐκ τούτων, καὶ οὐσία ἥ τε ὕλη καὶ τὸ εἶδος καὶ τὸ ἐκ τούτων, ἔστι μὲν ὡς καὶ ἡ ὕλη μέρος τινὸς λέγεται, ἔστι δ' ὡς οὔ, ἀλλ' ἐξ ὧν ὁ τοῦ εἴδους λόγος.	But the latter seem to be prior; for the former are defined in their account from the latter, and the latter are also prior in being able to exist without the former.—Or is it that "part" is said in many ways, one of which is what measures by quantity? But let us set this aside; what we must examine is what the parts are from which substance is composed. 1035a If, then, there is matter, and form, and what is composed of these, and both matter and form and what is composed of these are substance, then there is a sense in which even matter is called a part of something, and a sense in which it is not; rather, the parts are those of which the account of the form consists.
1035a οἷον τῆς μὲν κοιλότητος οὐκ ἔστι μέρος ἡ σάρξ (αὕτη γὰρ ἡ ὕλη ἐφ' ἧς γίγνεται), τῆς δὲ σιμότητος μέρος· καὶ τοῦ	For instance, flesh is not a part of concavity (for flesh is the matter in which concavity comes

8 *Stoicheion* means both "letter" and "element."

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μὲν συνόλου ἀνδριάντος μέρος ὁ χαλκὸς τοῦ δ' ὡς εἴδους λεγομένου ἀνδριάντος οὔ (λεκτέον γὰρ τὸ εἶδος καὶ ᾗ εἶδος ἔχει ἕκαστον, τὸ δ' ὑλικὸν οὐδέποτε καθ' αὑτὸ λεκτέον)· διὸ ὁ μὲν τοῦ κύκλου λόγος οὐκ ἔχει τὸν τῶν τμημάτων, ὁ δὲ τῆς συλλαβῆς ἔχει τὸν τῶν στοιχείων· τὰ μὲν γὰρ στοιχεῖα τοῦ λόγου μέρη τοῦ εἴδους καὶ οὐχ ὕλη, τὰ δὲ τμήματα οὕτως μέρη ὡς ὕλη ἐφ' ἧς ἐπιγίγνεται· ἐγγυτέρω μέντοι τοῦ εἴδους ἢ ὁ χαλκὸς ὅταν ἐν χαλκῷ ἡ στρογγυλότης ἐγγένηται.

ἔστι δ' ὡς οὐδὲ τὰ στοιχεῖα πάντα τῆς συλλαβῆς ἐν τῷ λόγῳ ἐνέσται, οἷον ταδὶ τὰ κήρινα ἢ τὰ ἐν τῷ ἀέρι· ἤδη γὰρ καὶ ταῦτα μέρος τῆς συλλαβῆς ὡς ὕλη αἰσθητή. καὶ γὰρ ἡ γραμμὴ οὐκ εἰ διαιρουμένη εἰς τὰ ἡμίση φθείρεται, ἢ ὁ ἄνθρωπος εἰς τὰ ὀστᾶ καὶ νεῦρα καὶ σάρκας, διὰ τοῦτο καὶ εἰσὶν ἐκ τούτων οὕτως ὡς ὄντων τῆς οὐσίας μερῶν, ἀλλ' ὡς ἐξ ὕλης, καὶ τοῦ μὲν συνόλου μέρη, τοῦ εἴδους δὲ καὶ οὗ ὁ λόγος οὐκέτι· διόπερ οὐδ' ἐν τοῖς λόγοις. τῷ μὲν οὖν ἐνέσται ὁ τῶν τοιούτων μερῶν λόγος, τῷ δ' οὐ δεῖ ἐνεῖναι, ἂν μὴ ᾖ τοῦ συνειλημμένου· διὰ γὰρ τοῦτο ἔνια μὲν ἐκ τούτων ὡς ἀρχῶν ἐστὶν εἰς ἃ φθείρονται, ἔνια δὲ οὐκ ἔστιν.

ὅσα μὲν οὖν συνειλημμένα τὸ εἶδος καὶ ἡ ὕλη ἐστίν, οἷον τὸ σιμὸν ἢ ὁ χαλκοῦς κύκλος, ταῦτα μὲν φθείρεται εἰς ταῦτα καὶ μέρος αὐτῶν ἡ ὕλη· ὅσα δὲ μὴ συνείληπται τῇ ὕλῃ ἀλλὰ ἄνευ ὕλης, ὧν οἱ λόγοι τοῦ εἴδους μόνον, ταῦτα δ' οὐ φθείρεται, ἢ ὅλως ἢ οὕτοι οὕτω γε· ὥστ' ἐκείνων μὲν ἀρχαὶ καὶ μέρη ταῦτα τοῦ δὲ εἴδους οὔτε μέρη οὔτε ἀρχαί.

καὶ διὰ τοῦτο φθείρεται ὁ πήλινος ἀνδριὰς εἰς πηλὸν καὶ ἡ σφαῖρα εἰς χαλκὸν καὶ ὁ Καλλίας εἰς σάρκα καὶ ὀστᾶ, ἔτι δὲ ὁ κύκλος εἰς τὰ τμήματα· ἔστι γάρ τις ὃς συνείληπται τῇ ὕλῃ· [1035b] ὁμωνύμως γὰρ λέγεται κύκλος ὅ τε ἁπλῶς λεγόμενος καὶ ὁ καθ' ἕκαστα διὰ τὸ μὴ εἶναι ἴδιον ὄνομα τοῖς καθ' ἕκαστον.—εἴρηται μὲν οὖν καὶ νῦν τὸ ἀληθές, ὅμως δ' ἔτι σαφέστερον εἴπωμεν ἐπαναλαβόντες. ὅσα μὲν

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about), but it is a part of snubness. And the bronze is a part of the composite statue, but not of the statue spoken of as form. (For we should speak of the form, and of each thing insofar as it has form, but never of the material aspect in its own right.) That is why the account of the circle does not contain that of the segments, while the account of the syllable contains that of the letters. For the letters of the account are parts of the form and not matter, whereas the segments are parts in the way that matter is, the matter in which the form comes about—though they are closer to the form than the bronze is, when roundness comes about in bronze.

But there is a sense in which not all the letters will be present in the account of the syllable either—these particular wax letters, for instance, or the ones in the air; for these too are already part of the syllable as perceptible matter. For even if a line is destroyed when divided into halves, or a human being when divided into bones and sinews and flesh, it does not follow that they are composed of these as parts of their substance, but as of matter; these are parts of the composite, but no longer of the form and of that of which there is an account. That is why they are not in the accounts either. So in some accounts the account of such parts will be present, but in others it need not be, unless the account is of the thing taken together with matter. For this is why some things are composed of the things into which they perish as their principles, and some are not.[9]

Things in which the form and the matter are taken together, such as the snub or the bronze circle, perish into these, and matter is a part of them. But things that are not taken together with matter but are without matter, whose accounts are of the form alone, do not perish—either not at all, or at least not in this way. So these are principles and parts of the former things, but of the form they are neither parts nor principles.

And that is why the clay statue perishes into clay, and the sphere into bronze, and Callias into flesh and bones, and further the circle into its segments; for there is a kind of circle that is taken together with matter. [1035b] For the circle spoken of without qualification and the particular circle are called "circle" homonymously, because the partic-

9 Letters "in the air" are spoken sounds; wax letters are written on a wax tablet.

GREEK

γὰρ τοῦ λόγου μέρη καὶ εἰς ἃ διαιρεῖται ὁ λόγος, ταῦτα πρότερα ἢ πάντα ἢ ἔνια· ὁ δὲ τῆς ὀρθῆς λόγος οὐ διαιρεῖται εἰς ὀξείας λόγον, ἀλλ' ⟨ὁ⟩ τῆς ὀξείας εἰς ὀρθήν· χρῆται γὰρ ὁ ὁριζόμενος τὴν ὀξεῖαν τῇ ὀρθῇ· ἐλάττων γὰρ ὀρθῆς ἡ ὀξεῖα.

1035b ὁμοίως δὲ καὶ ὁ κύκλος καὶ τὸ ἡμικύκλιον ἔχουσιν· τὸ γὰρ ἡμικύκλιον τῷ κύκλῳ ὁρίζεται καὶ ὁ δάκτυλος τῷ ὅλῳ· τὸ γὰρ τοιόνδε μέρος ἀνθρώπου δάκτυλος. ὥσθ' ὅσα μὲν μέρη ὡς ὕλη καὶ εἰς ἃ διαιρεῖται ὡς ὕλην, ὕστερα· ὅσα δὲ ὡς τοῦ λόγου καὶ τῆς οὐσίας τῆς κατὰ τὸν λόγον, πρότερα ἢ πάντα ἢ ἔνια.

ἐπεὶ δὲ ἡ τῶν ζῴων ψυχή (τοῦτο γὰρ οὐσία τοῦ ἐμψύχου) ἡ κατὰ τὸν λόγον οὐσία καὶ τὸ εἶδος καὶ τὸ τί ἦν εἶναι τῷ τοιῷδε σώματι (ἕκαστον γοῦν τὸ μέρος ἐὰν ὁρίζηται καλῶς, οὐκ ἄνευ τοῦ ἔργου ὁριεῖται, ὃ οὐχ ὑπάρξει ἄνευ αἰσθήσεως), ὥστε τὰ ταύτης μέρη πρότερα ἢ πάντα ἢ ἔνια τοῦ συνόλου ζῴου, καὶ καθ' ἕκαστον δὴ ὁμοίως, τὸ δὲ σῶμα καὶ τὰ τούτου μόρια ὕστερα ταύτης τῆς οὐσίας, καὶ διαιρεῖται εἰς ταῦτα ὡς εἰς ὕλην οὐχ ἡ οὐσία ἀλλὰ τὸ σύνολον,—τοῦ μὲν οὖν συνόλου πρότερα ταῦτ' ἔστιν ὥς, ἔστι δ' ὡς οὔ (οὐδὲ γὰρ εἶναι δύναται χωριζόμενα· οὐ γὰρ ὁ πάντως ἔχων δάκτυλος ζῴου, ἀλλ' ὁμώνυμος ὁ τεθνεώς)· ἔνια δὲ ἅμα, ὅσα κύρια καὶ ἐν ᾧ πρώτῳ ὁ λόγος καὶ ἡ οὐσία, οἷον εἰ τοῦτο καρδία ἢ ἐγκέφαλος· διαφέρει γὰρ οὐθὲν πότερον τοιοῦτον.

ὁ δ' ἄνθρωπος καὶ ὁ ἵππος καὶ τὰ οὕτως ἐπὶ τῶν καθ' ἕκαστα, καθόλου δέ, οὐκ ἔστιν οὐσία ἀλλὰ σύνολόν τι ἐκ τουδὶ τοῦ λόγου καὶ τησδὶ τῆς ὕλης ὡς καθόλου· καθ' ἕκαστον δ' ἐκ τῆς ἐσχάτης ὕλης ὁ Σωκράτης ἤδη ἐστίν, καὶ ἐπὶ τῶν ἄλλων ὁμοίως.—μέρος μὲν οὖν ἐστι καὶ τοῦ εἴδους (εἶδος δὲ λέγω τὸ τί ἦν εἶναι) καὶ τοῦ συνόλου τοῦ ἐκ τοῦ εἴδους καὶ τῆς ὕλης ⟨καὶ τῆς ὕλης⟩ αὐτῆς. ἀλλὰ τοῦ λόγου μέρη τὰ τοῦ εἴδους μόνον ἐστίν, ὁ δὲ λόγος ἐστὶ

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ulars have no name of their own.—The truth has now been stated, but let us state it still more clearly by taking it up again. The parts of the account, into which the account is divided, are prior, either all of them or some. The account of the right angle is not divided into the account of the acute angle; rather, the account of the acute angle is divided into the right angle. For whoever defines the acute angle uses the right angle, since the acute angle is "less than a right angle."

It is the same with the circle and the semicircle: the semicircle is defined by the circle, and the finger by the whole, for a finger is "such-and-such a part of a human being." So the parts that are parts as matter, and into which the thing is divided as into matter, are posterior; but those that are parts as of the account and of the substance according to the account are prior, either all of them or some.

The soul of animals (for this is the substance of what is ensouled) is the substance according to the account, and the form and essence of a body of this kind. (At any rate, each part, if it is defined well, will not be defined without its function, which it will not have without perception.) So the parts of the soul are prior, either all of them or some, to the composite animal, and likewise in each particular case; whereas the body and its parts are posterior to this substance, and what is divided into them as into matter is not the substance but the composite. These parts, then, are in one way prior to the composite and in another way not, since they cannot even exist when separated. For it is not a finger in any state whatever that is the finger of an animal; a dead finger is a finger only homonymously. Some parts, though, are simultaneous with the whole: those that are in control, in which the account and the substance are primarily present—the heart, for instance, or the brain, whichever of the two is of this kind; it makes no difference.

But human being and horse and things applied in this way to particulars, but universally, are not substance, but a kind of composite of this account and this matter, taken universally. Socrates, as a particular, is already composed of the ultimate matter, and likewise in the other cases.—There are parts, then, of the form (by form I mean the essence), and of the composite of form and matter,

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τοῦ καθόλου· [1036a] τὸ γὰρ κύκλῳ εἶναι καὶ κύκλος καὶ ψυχῇ εἶναι καὶ ψυχὴ ταὐτό.	and of the matter itself. But only the parts of the form are parts of the account, and the account is of the universal; [1036a] for being a circle and circle, and being a soul and soul, are the same.
1036a τοῦ δὲ συνόλου ἥδη, οἷον κύκλου τουδὶ καὶ τῶν καθ' ἕκαστά τινος ἢ αἰσθητοῦ ἢ νοητοῦ—λέγω δὲ νοητοὺς μὲν οἷον τοὺς μαθηματικούς, αἰσθητοὺς δὲ οἷον τοὺς χαλκοῦς καὶ τοὺς ξυλίνους—τούτων δὲ οὐκ ἔστιν ὁρισμός, ἀλλὰ μετὰ νοήσεως ἢ αἰσθήσεως γνωρίζονται, ἀπελθόντες δὲ ἐκ τῆς ἐντελεχείας οὐ δῆλον πότερον εἰσὶν ἢ οὐκ εἰσίν· ἀλλ' ἀεὶ λέγονται καὶ γνωρίζονται τῷ καθόλου λόγῳ. ἡ δ' ὕλη ἄγνωστος καθ' αὑτήν. ὕλη δὲ ἡ μὲν αἰσθητή ἐστιν ἡ δὲ νοητή, αἰσθητὴ μὲν οἷον χαλκὸς καὶ ξύλον καὶ ὅση κινητὴ ὕλη, νοητὴ δὲ ἡ ἐν τοῖς αἰσθητοῖς ὑπάρχουσα μὴ ᾗ αἰσθητά, οἷον τὰ μαθηματικά.	But of the composite—this circle, say, one of the particular circles, whether perceptible or intelligible (by intelligible I mean, for instance, the mathematical ones, and by perceptible, for instance, the bronze and the wooden ones)—of these there is no definition. They are known with thought or perception, and when they pass out of actuality it is not clear whether they exist or not; but they are always spoken of and known by the universal account. Matter is unknowable in its own right. And some matter is perceptible, some intelligible: perceptible, like bronze and wood and any matter capable of motion; intelligible, the matter present in perceptible things but not insofar as they are perceptible—mathematical objects, for instance.
πῶς μὲν οὖν ἔχει περὶ ὅλου καὶ μέρους καὶ περὶ τοῦ προτέρου καὶ ὑστέρου, εἴρηται· πρὸς δὲ τὴν ἐρώτησιν ἀνάγκη ἁπαντᾶν, ὅταν τις ἔρηται πότερον ἡ ὀρθὴ καὶ ὁ κύκλος καὶ τὸ ζῷον πρότερον ἢ εἰς ἃ διαιροῦνται καὶ ἐξ ὧν εἰσί, τὰ μέρη, ὅτι οὐχ ἁπλῶς.	We have said, then, how things stand with whole and part, and with prior and posterior. But when someone asks whether the right angle and the circle and the animal are prior, or the things into which they are divided and of which they are composed, the parts, we must meet the question by saying that there is no unqualified answer.
εἰ μὲν γάρ ἐστι καὶ ἡ ψυχὴ ζῷον ἢ ἔμψυχον, ἢ ἕκαστον ἡ ἑκάστου, καὶ κύκλος τὸ κύκλῳ εἶναι, καὶ ὀρθὴ τὸ ὀρθῇ εἶναι καὶ ἡ οὐσία ἡ τῆς ὀρθῆς, τὶ μὲν καὶ τινὸς φατέον ὕστερον, οἷον τῶν ἐν τῷ λόγῳ καὶ τινὸς ὀρθῆς (καὶ γὰρ ἡ μετὰ τῆς ὕλης, ἡ χαλκῆ ὀρθή, καὶ ἡ ἐν ταῖς γραμμαῖς ταῖς καθ' ἕκαστα), ἡ δ' ἄνευ ὕλης τῶν μὲν ἐν τῷ λόγῳ ὑστέρα τῶν δ' ἐν τῷ καθ' ἕκαστα μορίων προτέρα, ἁπλῶς δ' οὐ φατέον· εἰ δ' ἑτέρα καὶ μὴ ἔστιν ἡ ψυχὴ ζῷον, καὶ οὕτω τὰ μὲν φατέον τὰ δ' οὐ φατέον, ὥσπερ εἴρηται.	For if the soul too is the animal, or the ensouled thing—or each thing's soul is the thing—and the circle is being a circle, and the right angle is being a right angle and the substance of the right angle, then we must say that a whole is in one sense posterior to parts in one sense—to the parts in its account, for instance, and to those of a particular right angle. (For both the right angle with matter, the bronze right angle, and the one in particular lines are posterior.) The right angle without matter is posterior to the parts in its account but prior to the parts in the particular; but we must not give an unqualified answer. If, on the other hand, the soul is something different and is not the animal, then in this case too we must say that some are prior and some are not, as has been said.

WHICH PARTS BELONG TO THE FORM?

Whether flesh and bones belong to the form of human being, and a warning against abstracting from matter.

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ἀπορεῖται δὲ εἰκότως καὶ ποῖα τοῦ εἴδους μέρη καὶ ποῖα οὔ, ἀλλὰ τοῦ συνειλημμένου. καίτοι τούτου μὴ δήλου ὄντος οὐκ ἔστιν ὁρίσασθαι ἕκαστον· τοῦ γὰρ καθόλου καὶ τοῦ εἴδους ὁ ὁρισμός· ποῖα οὖν ἐστὶ τῶν μερῶν ὡς ὕλη καὶ ποῖα οὔ, ἐὰν μὴ ᾖ φανερά, οὐδὲ ὁ λόγος ἔσται φανερὸς ὁ τοῦ πράγματος.	It is also reasonably a puzzle which parts belong to the form and which do not, but to the thing taken together with matter. And yet if this is not clear, it is not possible to define each thing; for definition is of the universal and of the form. So if it is not evident which of the parts are parts as matter and which are not, neither will the account of the thing be evident.
ὅσα μὲν οὖν φαίνεται ἐπιγιγνόμενα ἐφ' ἑτέρων τῷ εἴδει, οἷον κύκλος ἐν χαλκῷ καὶ λίθῳ καὶ ξύλῳ, ταῦτα μὲν δῆλα εἶναι δοκεῖ ὅτι οὐδὲν τῆς τοῦ κύκλου οὐσίας ὁ χαλκὸς οὐδ' ὁ λίθος διὰ τὸ χωρίζεσθαι αὐτῶν· ὅσα δὲ μὴ ὁρᾶται χωριζόμενα, οὐδὲν μὲν κωλύει ὁμοίως ἔχειν τούτοις, ὥσπερ κἂν εἰ οἱ κύκλοι πάντες ἐωρῶντο χαλκοῖ· 1036b οὐδὲν γὰρ ἂν ἧττον ἦν ὁ χαλκὸς οὐδὲν τοῦ εἴδους· χαλεπὸν δὲ ἀφελεῖν τοῦτον τῇ διανοίᾳ. οἷον τὸ τοῦ ἀνθρώπου εἶδος ἀεὶ ἐν σαρξὶ φαίνεται καὶ ὀστοῖς καὶ τοῖς τοιούτοις μέρεσιν· ἆρ' οὖν καὶ ἐστὶ ταῦτα μέρη τοῦ εἴδους καὶ τοῦ λόγου; ἢ οὔ, ἀλλ' ὕλη, ἀλλὰ διὰ τὸ μὴ καὶ ἐπ' ἄλλων ἐπιγίγνεσθαι ἀδυνατοῦμεν χωρίσαι;	In the case of things that plainly come about in materials different in kind, as a circle does in bronze and stone and wood, it seems clear that the bronze and the stone are no part of the substance of the circle, because the circle is separated from them. But as for things that are not seen separated, nothing prevents them from being in the same position as these—just as if all the circles one saw were bronze; 1036b for the bronze would be no less no part of the form, though it would be hard to remove it in thought. For example, the form of human being always appears in flesh and bones and parts of that kind. Are these, then, also parts of the form and of the account? Or are they not, but matter—though because the form does not also come about in other materials, we are unable to separate it?
1036b ἐπεὶ δὲ τοῦτο δοκεῖ μὲν ἐνδέχεσθαι ἄδηλον δὲ πότε, ἀποροῦσί τινες ἤδη καὶ ἐπὶ τοῦ κύκλου καὶ τοῦ τριγώνου ὡς οὐ προσῆκον γραμμαῖς ὁρίζεσθαι καὶ τῷ συνεχεῖ, ἀλλὰ πάντα καὶ ταῦτα ὁμοίως λέγεσθαι ὡσανεὶ σάρκες καὶ ὀστᾶ τοῦ ἀνθρώπου καὶ χαλκὸς καὶ λίθος τοῦ ἀνδριάντος· καὶ ἀνάγουσι πάντα εἰς τοὺς ἀριθμούς, καὶ γραμμῆς τὸν λόγον τὸν τῶν δύο εἶναί φασιν. καὶ τῶν τὰς ἰδέας λεγόντων οἱ μὲν αὐτογραμμὴν τὴν δυάδα, οἱ δὲ τὸ εἶδος τῆς γραμμῆς, ἔνια μὲν γὰρ εἶναι τὸ αὐτὸ τὸ εἶδος καὶ οὗ τὸ εἶδος (οἷον δυάδα καὶ τὸ εἶδος δυάδος), ἐπὶ γραμμῆς δὲ οὐκέτι.	Since this seems possible, but it is unclear when it is the case, some people already raise puzzles even about the circle and the triangle, on the ground that it is not appropriate to define them by lines and by the continuous, but that these too are all spoken of in the same way as flesh and bones are of the human being, and bronze and stone of the statue. And they reduce everything to the numbers, and say that the account of line is that of two. Of those who speak of the Forms, some say the dyad is line-itself, others that it is the Form of line; for in some cases, they say, the Form and that of which it is the Form are the same (the dyad and the Form of the dyad, for instance), but in the case of line this no longer holds.
συμβαίνει δὴ ἕν τε πολλῶν εἶδος εἶναι ὧν τὸ εἶδος φαίνεται ἕτερον (ὅπερ καὶ τοῖς Πυθαγορείοις συνέβαινεν), καὶ ἐνδέχεται ἓν πάντων ποιεῖν αὐτὸ εἶδος, τὰ δ' ἄλλα μὴ εἴδη· καίτοι οὕτως ἓν πάντα ἔσται.	It follows that there is one form of many things whose form evidently differs (which is just what befell the Pythagoreans), and that it is possible to make one thing the form itself of all things and the

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others not forms. And yet in that way all things will be one.

ὅτι μὲν οὖν ἔχει τινὰ ἀπορίαν τὰ περὶ τοὺς ὁρισμούς, καὶ διὰ τίν' αἰτίαν, εἴρηται· διὸ καὶ τὸ πάντα ἀνάγειν οὕτω καὶ ἀφαιρεῖν τὴν ὕλην περίεργον· ἔνια γὰρ ἴσως τόδ' ἐν τῷδ' ἐστὶν ἢ ὡδὶ ταδὶ ἔχοντα. καὶ ἡ παραβολὴ ἡ ἐπὶ τοῦ ζῴου, ἣν εἰώθει λέγειν Σωκράτης ὁ νεώτερος, οὐ καλῶς ἔχει· ἀπάγει γὰρ ἀπὸ τοῦ ἀληθοῦς, καὶ ποιεῖ ὑπολαμβάνειν ὡς ἐνδεχόμενον εἶναι τὸν ἄνθρωπον ἄνευ τῶν μερῶν, ὥσπερ ἄνευ τοῦ χαλκοῦ τὸν κύκλον. τὸ δ' οὐχ ὅμοιον· αἰσθητὸν γάρ τι τὸ ζῷον, καὶ ἄνευ κινήσεως οὐκ ἔστιν ὁρίσασθαι, διὸ οὐδ' ἄνευ τῶν μερῶν ἐχόντων πώς. οὐ γὰρ πάντως τοῦ ἀνθρώπου μέρος ἡ χείρ, ἀλλ' ἢ δυναμένη τὸ ἔργον ἀποτελεῖν, ὥστε ἔμψυχος οὖσα· μὴ ἔμψυχος δὲ οὐ μέρος.

We have said, then, that questions about definitions involve a certain puzzle, and for what reason. That is why reducing everything in this way and removing the matter is wasted effort; for some things, presumably, are this in that, or these things in this state. And the comparison in the case of the animal, which Socrates the Younger used to make, is not a good one. For it leads away from the truth, and makes one suppose that a human being can exist without his parts, as the circle can without the bronze. But the case is not similar. For an animal is something perceptible, and it cannot be defined without motion, and so not without its parts being in a certain state. For it is not a hand in any state whatever that is a part of a human being, but the hand that is able to perform its function, and so one that is ensouled; if it is not ensouled, it is not a part.[10]

περὶ δὲ τὰ μαθηματικὰ διὰ τί οὐκ εἰσὶ μέρη οἱ λόγοι τῶν λόγων, οἷον τοῦ κύκλου τὰ ἡμικύκλια; οὐ γάρ ἐστιν αἰσθητὰ ταῦτα. ἢ οὐθὲν διαφέρει; ἔσται γὰρ ὕλη ἐνίων καὶ μὴ αἰσθητῶν· 1037a καὶ παντὸς γὰρ ὕλη τις ἔστιν ὃ μὴ ἔστι τί ἦν εἶναι καὶ εἶδος αὐτὸ καθ' αὑτὸ ἀλλὰ τόδε τι. κύκλου μὲν οὖν οὐκ ἔσται τοῦ καθόλου, τῶν δὲ καθ' ἕκαστα ἔσται μέρη ταῦτα, ὥσπερ εἴρηται πρότερον· ἔστι γὰρ ὕλη ἡ μὲν αἰσθητὴ ἡ δὲ νοητή.

But in mathematics, why are the accounts of the parts not parts of the accounts of the wholes—why, for instance, are the semicircles not parts of the account of the circle? After all, these are not perceptible. Or does this make no difference? For there will be matter even of some things that are not perceptible; 1037a indeed there is matter of everything that is not an essence and a form itself by itself, but a "this." So the semicircles will not be parts of the universal circle, but they will be parts of the particular circles, as was said before; for some matter is perceptible, some intelligible.

1037a δῆλον δὲ καὶ ὅτι ἡ μὲν ψυχὴ οὐσία ἡ πρώτη, τὸ δὲ σῶμα ὕλη, ὁ δ' ἄνθρωπος ἢ τὸ ζῷον τὸ ἐξ ἀμφοῖν ὡς καθόλου· Σωκράτης δὲ καὶ Κορίσκος, εἰ μὲν καὶ ἡ ψυχὴ Σωκράτης, διττόν (οἱ μὲν γὰρ ὡς ψυχὴν οἱ δ' ὡς τὸ σύνολον), εἰ δ' ἁπλῶς ἡ ψυχὴ ἥδε καὶ ⟨τὸ⟩ σῶμα τόδε, ὥσπερ τὸ καθόλου [τε] καὶ τὸ καθ' ἕκαστον. πότερον δὲ ἔστι παρὰ τὴν ὕλην τῶν τοιούτων οὐσιῶν τις ἄλλη, καὶ δεῖ ζητεῖν οὐσίαν ἑτέραν τινὰ οἷον ἀριθμοὺς ἤ τι τοιοῦτον, σκεπτέον ὕστερον.

It is clear too that the soul is the primary substance and the body is matter, while human being or animal is the compound of both, taken universally. As for Socrates and Coriscus, if Socrates is also his soul, the term is twofold (for some use it of the soul, some of the composite); but if it simply means this soul and this body, then as with the universal, so with the particular. Whether there is some other substance beyond the matter of such substances, and whether we should look for some different substance, such as numbers or something of that kind, must be examined later.

τούτου γὰρ χάριν καὶ περὶ τῶν αἰσθητῶν οὐσιῶν πειρώμεθα διορίζειν, ἐπεὶ τρόπον τινὰ τῆς φυσικῆς καὶ

For it is for the sake of this that we are also trying to reach distinctions about perceptible sub-

10 Socrates the Younger was a mathematician in Plato's Academy, a participant in Plato's *Statesman*.

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δευτέρας φιλοσοφίας ἔργον ἡ περὶ τὰς αἰσθητὰς οὐσίας θεωρία· οὐ γὰρ μόνον περὶ τῆς ὕλης δεῖ γνωρίζειν τὸν φυσικὸν ἀλλὰ καὶ τῆς κατὰ τὸν λόγον, καὶ μᾶλλον. ἐπὶ δὲ τῶν ὁρισμῶν πῶς μέρη τὰ ἐν τῷ λόγῳ, καὶ διὰ τί εἷς λόγος ὁ ὁρισμός (δῆλον γὰρ ὅτι τὸ πρᾶγμα ἕν, τὸ δὲ πρᾶγμα τίνι ἕν, μέρη γε ἔχον;), σκεπτέον ὕστερον.	stances, since in a way the study of perceptible substances is the work of natural philosophy, that is, of second philosophy. For the student of nature must know not only about the matter but also about the substance according to the account—and this even more. As for definitions, in what way the items in the account are parts, and why the definition is one account (for clearly the thing is one; but by virtue of what is the thing one, given that it has parts?), this must be examined later.
τί μὲν οὖν ἐστὶ τὸ τί ἦν εἶναι καὶ πῶς αὐτὸ καθ' αὑτό, καθόλου περὶ παντὸς εἴρηται, καὶ διὰ τί τῶν μὲν ὁ λόγος ὁ τοῦ τί ἦν εἶναι ἔχει τὰ μόρια τοῦ ὁριζομένου τῶν δ' οὔ, καὶ ὅτι ἐν μὲν τῷ τῆς οὐσίας λόγῳ τὰ οὕτω μόρια ὡς ὕλη οὐκ ἐνέσται—οὐδὲ γὰρ ἔστιν ἐκείνης μόρια τῆς οὐσίας ἀλλὰ τῆς συνόλου, ταύτης δέ γ' ἔστι πως λόγος καὶ οὐκ ἔστιν· μετὰ μὲν γὰρ τῆς ὕλης οὐκ ἔστιν (ἀόριστον γάρ), κατὰ τὴν πρώτην δ' οὐσίαν ἔστιν, οἷον ἀνθρώπου ὁ τῆς ψυχῆς λόγος·	What the essence is, then, and how it is itself by itself, has been stated universally for every case; and also why the account of the essence of some things contains the parts of the thing defined while that of others does not; and that in the account of the substance the parts that are parts as matter will not be present—for they are not parts of that substance but of the composite substance, and of this there is in a way an account and in a way not. With the matter there is none, since matter is indefinite; but according to the primary substance there is—of a human being, for instance, the account of the soul.
ἡ γὰρ οὐσία ἐστὶ τὸ εἶδος τὸ ἐνόν, ἐξ οὗ καὶ τῆς ὕλης ἡ σύνολος λέγεται οὐσία, οἷον ἡ κοιλότης (ἐκ γὰρ ταύτης καὶ τῆς ῥινὸς σιμὴ ῥὶς καὶ ἡ σιμότης ἐστί [δὶς γὰρ ἐν τούτοις ὑπάρξει ἡ ῥίς])—ἐν δὲ τῇ συνόλῳ οὐσίᾳ, οἷον ῥινὶ σιμῇ ἢ Καλλίᾳ, ἐνέσται καὶ ἡ ὕλη· καὶ ὅτι τὸ τί ἦν εἶναι καὶ ἕκαστον ἐπὶ τινῶν μὲν ταὐτό, [1037b] ὥσπερ ἐπὶ τῶν πρώτων οὐσιῶν, οἷον καμπυλότης καὶ καμπυλότητι εἶναι, εἰ πρώτη ἐστίν (λέγω δὲ πρώτην ἢ μὴ λέγεται τῷ ἄλλο ἐν ἄλλῳ εἶναι καὶ ὑποκειμένῳ ὡς ὕλῃ), ὅσα δὲ ὡς ὕλη ἢ ὡς συνειλημμένα τῇ ὕλῃ, οὐ ταὐτό, οὐδ' ⟨εἰ⟩ κατὰ συμβεβηκὸς ἕν, οἷον Σωκράτης καὶ τὸ μουσικόν· ταῦτα γὰρ ταὐτὰ κατὰ συμβεβηκός.	For substance is the form present in the thing, from which, together with the matter, the composite substance is so called—concavity, for instance. (For from this and the nose come the snub nose and snubness; for nose will be present twice in these.) But in the composite substance, such as a snub nose or Callias, the matter will also be present. And we have said that the essence and the thing itself are in some cases the same, [1037b] as with primary substances—for instance, curvature and being curvature, if it is primary. (By "primary" I mean what is not spoken of by one thing's being in another, in an underlying subject as matter.) But things that are as matter, or taken together with matter, are not the same as their essence—not even if they are accidentally one, like Socrates and the musical; for these are the same accidentally.

THE UNITY OF DEFINITION

What makes a definition one; definition by division ends in the last differentia.

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1037b νῦν δὲ λέγωμεν πρῶτον ἐφ' ὅσον ἐν τοῖς ἀναλυτικοῖς περὶ ὁρισμοῦ μὴ εἴρηται· ἡ γὰρ ἐν ἐκείνοις ἀπορία	Now let us first discuss definition to the extent that it has not been discussed in the *Analytics*. For

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λεχθεῖσα πρὸ ἔργου τοῖς περὶ τῆς οὐσίας ἐστὶ λόγοις. λέγω δὲ ταύτην τὴν ἀπορίαν, διὰ τί ποτε ἕν ἐστιν οὗ τὸν λόγον ὁρισμὸν εἶναί φαμεν, οἷον τοῦ ἀνθρώπου τὸ ζῷον δίπουν· ἔστω γὰρ οὗτος αὐτοῦ λόγος.

διὰ τί δὴ τοῦτο ἕν ἐστιν ἀλλ' οὐ πολλά, ζῷον καὶ δίπουν· ἐπὶ μὲν γὰρ τοῦ ἄνθρωπος καὶ λευκὸν πολλὰ μέν ἐστιν ὅταν μὴ ὑπάρχῃ θατέρῳ θάτερον, ἓν δὲ ὅταν ὑπάρχῃ καὶ πάθῃ τι τὸ ὑποκείμενον, ὁ ἄνθρωπος (τότε γὰρ ἓν γίγνεται καὶ ἔστιν ὁ λευκὸς ἄνθρωπος)· ἐνταῦθα δ' οὐ μετέχει θατέρου θάτερον· τὸ γὰρ γένος οὐ δοκεῖ μετέχειν τῶν διαφορῶν (ἅμα γὰρ ἂν τῶν ἐναντίων τὸ αὐτὸ μετεῖχεν· αἱ γὰρ διαφοραὶ ἐναντίαι αἷς διαφέρει τὸ γένος). εἰ δὲ καὶ μετέχει, ὁ αὐτὸς λόγος, εἴπερ εἰσὶν αἱ διαφοραὶ πλείους, οἷον πεζὸν δίπουν ἄπτερον. διὰ τί γὰρ ταῦθ' ἓν ἀλλ' οὐ πολλά; οὐ γὰρ ὅτι ἐνυπάρχει· οὕτω μὲν γὰρ ἐξ ἁπάντων ἔσται ἕν.

δεῖ δέ γε ἓν εἶναι ὅσα ἐν τῷ ὁρισμῷ· ὁ γὰρ ὁρισμὸς λόγος τίς ἐστιν εἷς καὶ οὐσίας, ὥστε ἑνός τινος δεῖ αὐτὸν εἶναι λόγον· καὶ γὰρ ἡ οὐσία ἕν τι καὶ τόδε τι σημαίνει, ὡς φαμέν.—δεῖ δὲ ἐπισκοπεῖν πρῶτον περὶ τῶν κατὰ τὰς διαιρέσεις ὁρισμῶν. οὐδὲν γὰρ ἕτερόν ἐστιν ἐν τῷ ὁρισμῷ πλὴν τὸ πρῶτον λεγόμενον γένος καὶ αἱ διαφοραί· τὰ δ' ἄλλα γένη ἐστὶ τό τε πρῶτον καὶ μετὰ τούτου αἱ συλλαμβανόμεναι διαφοραί, οἷον τὸ πρῶτον ζῷον, τὸ δὲ ἐχόμενον ζῷον δίπουν, καὶ πάλιν ζῷον δίπουν ἄπτερον· ὁμοίως δὲ κἂν διὰ πλειόνων λέγηται.

1038a ὅλως δ' οὐδὲν διαφέρει διὰ πολλῶν ἢ δι' ὀλίγων λέγεσθαι, ὥστ' οὐδὲ δι' ὀλίγων ἢ διὰ δυοῖν· τοῖν δυοῖν δὲ τὸ μὲν διαφορὰ τὸ δὲ γένος, οἷον τοῦ ζῷον δίπουν τὸ μὲν ζῷον γένος διαφορὰ δὲ θάτερον. εἰ οὖν τὸ γένος ἁπλῶς μὴ ἔστι παρὰ τὰ ὡς γένους εἴδη, ἢ εἰ ἔστι μὲν ὡς ὕλη δ' ἐστίν (ἡ μὲν γὰρ φωνὴ γένος καὶ ὕλη, αἱ δὲ διαφοραὶ τὰ εἴδη καὶ τὰ στοιχεῖα ἐκ ταύτης ποιοῦσιν), φανερὸν ὅτι ὁ ὁρισμός ἐστιν ὁ ἐκ τῶν διαφορῶν λόγος.

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the puzzle stated there is of use for our discussions of substance. I mean this puzzle: why on earth is that thing one whose account we call a definition—as, for instance, of human being, "two-footed animal"? Let this be its account.[11]

Why, then, is this one and not many, animal and two-footed? In the case of human being and pale, there are many when the one does not belong to the other, but one when it belongs and the underlying subject, the human being, has an affection; for then they become one, and there is the pale human being. Here, however, the one does not participate in the other; for the genus does not seem to participate in its differentiae, since then the same thing would participate in contraries at once, for the differentiae by which the genus is differentiated are contraries. And even if it does participate, the same argument applies, if the differentiae are several—footed, two-footed, featherless, for instance. Why are these one and not many? Not because they are present in one thing; for in that way one thing will be made of all of them.

Yet the items in the definition must be one; for the definition is an account that is one and of substance, so it must be the account of some one thing, since substance signifies something one and a "this," as we say.—We must first examine definitions reached by divisions. For there is nothing else in the definition but the genus mentioned first and the differentiae. The other genera are the first genus together with the differentiae taken along with it: for instance, the first is animal, the next two-footed animal, and again two-footed featherless animal; and likewise if it is stated through more terms.

In general, it makes no difference whether it is stated through many terms or through few, and so none whether through few or through two. Of the two, one is differentia and the other genus: in "two-footed animal," for instance, animal is the genus and the other is the differentia. If, then, the genus does not exist at all without qualification beyond the species that belong to the genus, or if it exists but exists as matter (for vocal sound is genus and matter, and the differentiae make the species, that is, the letters, from it), it is evident

11 The *Posterior Analytics* (Book II) discusses definition.

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that the definition is the account composed of the differentiae.

ἀλλὰ μὴν καὶ δεῖ γε διαιρεῖσθαι τῇ τῆς διαφορᾶς διαφορᾷ, οἷον ζῴου διαφορὰ τὸ ὑπόπουν· πάλιν τοῦ ζῴου τοῦ ὑπόποδος τὴν διαφορὰν δεῖ εἶναι ᾗ ὑπόπουν, ὥστ' οὐ λεκτέον τοῦ ὑπόποδος τὸ μὲν πτερωτὸν τὸ δὲ ἄπτερον, ἐάνπερ λέγῃ καλῶς (ἀλλὰ διὰ τὸ ἀδυνατεῖν ποιήσει τοῦτο), ἀλλ' ἢ τὸ μὲν σχιζόπουν τὸ δ' ἄσχιστον· αὗται γὰρ διαφοραὶ ποδός· ἡ γὰρ σχιζοποδία ποδότης τις. καὶ οὕτως ἀεὶ βούλεται βαδίζειν ἕως ἂν ἔλθῃ εἰς τὰ ἀδιάφορα· τότε δ' ἔσονται τοσαῦτα εἴδη ποδὸς ὅσαιπερ αἱ διαφοραί, καὶ τὰ ὑπόποδα ζῷα ἴσα ταῖς διαφοραῖς. εἰ δὴ ταῦτα οὕτως ἔχει, φανερὸν ὅτι ἡ τελευταία διαφορὰ ἡ οὐσία τοῦ πράγματος ἔσται καὶ ὁ ὁρισμός, εἴπερ μὴ δεῖ πολλάκις ταὐτὰ λέγειν ἐν τοῖς ὅροις· περίεργον γάρ.

But we must also divide by the differentia of the differentia. For instance, "footed" is a differentia of animal; next, the differentia of footed animal must be a differentia of it insofar as it is footed. So we should not say that of the footed one kind is feathered and another featherless, if we are to speak correctly (someone will do this out of inability), but only that one kind is split-footed and another not split. For these are differentiae of foot, since split-footedness is a kind of footedness. And in this way one wants to keep going until one comes to things that have no differentiae. Then there will be as many species of foot as there are differentiae, and the footed animals will be equal in number to the differentiae. If this is so, it is evident that the last differentia will be the substance of the thing and its definition, since we should not say the same things several times in our definitions; that is superfluous.

συμβαίνει δέ γε τοῦτο· ὅταν γὰρ εἴπῃ ζῷον ὑπόπουν δίπουν, οὐδὲν ἄλλο εἴρηκεν ἢ ζῷον πόδας ἔχον, δύο πόδας ἔχον· κἂν τοῦτο διαιρῇ τῇ οἰκείᾳ διαιρέσει, πλεονάκις ἐρεῖ καὶ ἰσάκις ταῖς διαφοραῖς. ἐὰν μὲν δὴ διαφορᾶς διαφορὰ γίγνηται, μία ἔσται ἡ τελευταία τὸ εἶδος καὶ ἡ οὐσία· ἐὰν δὲ κατὰ συμβεβηκός, οἷον εἰ διαιροῖ τοῦ ὑπόποδος τὸ μὲν λευκὸν τὸ δὲ μέλαν, τοσαῦται ὅσαι ἂν αἱ τομαὶ ὦσιν. ὥστε φανερὸν ὅτι ὁ ὁρισμὸς λόγος ἐστὶν ὁ ἐκ τῶν διαφορῶν, καὶ τούτων τῆς τελευταίας κατά γε τὸ ὀρθόν. δῆλον δ' ἂν εἴη, εἴ τις μετατάξειε τοὺς τοιούτους ὁρισμούς, οἷον τὸν τοῦ ἀνθρώπου, λέγων ζῷον δίπουν ὑπόπουν· περίεργον γὰρ τὸ ὑπόπουν εἰρημένου τοῦ δίποδος.

And yet this does happen. For when someone says "footed two-footed animal," he has said nothing other than "animal having feet, having two feet"; and if he divides this by its proper division, he will say it several times, as many times as there are differentiae. If, then, a differentia of a differentia is taken each time, one differentia, the last, will be the form and the substance. But if the division is by accidents—if, for instance, one were to divide the footed into the pale and the dark—there will be as many as there are cuts. So it is evident that the definition is the account composed of the differentiae, and, if it is done correctly, of the last of these. This would be clear if one were to rearrange such definitions—that of human being, for instance, saying "two-footed footed animal"; for "footed" is superfluous once "two-footed" has been said.

τάξις δ' οὐκ ἔστιν ἐν τῇ οὐσίᾳ· πῶς γὰρ δεῖ νοῆσαι τὸ μὲν ὕστερον τὸ δὲ πρότερον; περὶ μὲν οὖν τῶν κατὰ τὰς διαιρέσεις ὁρισμῶν τοσαῦτα εἰρήσθω τὴν πρώτην, ποῖοί τινές εἰσιν.

But there is no order in the substance; for how are we to think of one element as posterior and another as prior? About definitions by division, then, let this much be said as a first account of what they are like.

NO UNIVERSAL IS SUBSTANCE

A universal is common to many and cannot be the substance of anything.

GREEK	ENGLISH
1038b ἐπεὶ δὲ περὶ τῆς οὐσίας ἡ σκέψις ἐστί, πάλιν ἐπανέλθωμεν. λέγεται δ' ὥσπερ τὸ ὑποκείμενον οὐσία εἶναι καὶ τὸ τί ἦν εἶναι καὶ τὸ ἐκ τούτων, καὶ τὸ καθόλου. περὶ μὲν οὖν τοῖν δυοῖν εἴρηται (καὶ γὰρ περὶ τοῦ τί ἦν εἶναι καὶ τοῦ ὑποκειμένου, ὅτι διχῶς ὑπόκειται, ἢ τόδε τι ὄν, ὥσπερ τὸ ζῷον τοῖς πάθεσιν, ἢ ὡς ἡ ὕλη τῇ ἐντελεχείᾳ), δοκεῖ δὲ καὶ τὸ καθόλου αἴτιόν τισιν εἶναι μάλιστα, καὶ εἶναι ἀρχὴ τὸ καθόλου· διὸ ἐπέλθωμεν καὶ περὶ τούτου. ἔοικε γὰρ ἀδύνατον εἶναι οὐσίαν εἶναι ὁτιοῦν τῶν καθόλου λεγομένων. πρῶτον μὲν γὰρ οὐσία ἑκάστου ἡ ἴδιος ἑκάστῳ, ἢ οὐχ ὑπάρχει ἄλλῳ, τὸ δὲ καθόλου κοινόν· τοῦτο γὰρ λέγεται καθόλου ὃ πλείοσιν ὑπάρχειν πέφυκεν. τίνος οὖν οὐσία τοῦτ' ἔσται;	Since our inquiry is about substance, let us return to it. The underlying subject is said to be substance, and so are the essence and the compound of these, and the universal. We have discussed two of these—the essence and the underlying subject, of which we said that it underlies in two ways: either being a "this," as the animal underlies its affections, or as the matter underlies the actuality. But some also think that the universal is a cause most of all, and that the universal is a principle; so let us discuss this too. For it seems impossible for anything spoken of universally to be substance. First, the substance of each thing is the one that is peculiar to it, which does not belong to anything else; but the universal is common, since what is called universal is what naturally belongs to more than one thing. Of which thing, then, will it be the substance?
ἢ γὰρ πάντων ἢ οὐδενός, πάντων δ' οὐχ οἷόν τε· ἑνὸς δ' εἰ ἔσται, καὶ τἆλλα τοῦτ' ἔσται· ὧν γὰρ μία ἡ οὐσία καὶ τὸ τί ἦν εἶναι ἕν, καὶ αὐτὰ ἕν. ἔτι οὐσία λέγεται τὸ μὴ καθ' ὑποκειμένου, τὸ δὲ καθόλου καθ' ὑποκειμένου τινὸς λέγεται ἀεί. ἀλλ' ἆρα οὕτω μὲν οὐκ ἐνδέχεται ὡς τὸ τί ἦν εἶναι, ἐν τούτῳ δὲ ἐνυπάρχειν, οἷον τὸ ζῷον ἐν τῷ ἀνθρώπῳ καὶ ἵππῳ; οὐκοῦν δῆλον ὅτι ἔστι τις αὐτοῦ λόγος. διαφέρει δ' οὐθὲν οὐδ' εἰ μὴ πάντων λόγος ἔστι τῶν ἐν τῇ οὐσίᾳ· οὐδὲν γὰρ ἧττον οὐσία τοῦτ' ἔσται τινός, ὡς ὁ ἄνθρωπος τοῦ ἀνθρώπου ἐν ᾧ ὑπάρχει, ὥστε τὸ αὐτὸ συμβήσεται πάλιν· ἔσται γὰρ ἐκείνου οὐσία, οἷον τὸ ζῷον, ἐν ᾧ ὡς ἴδιον ὑπάρχει.	Either of all of them or of none. But it cannot be of all; and if it is to be of one, the others too will be this one, for things whose substance is one and whose essence is one are themselves one. Further, substance is what is not said of an underlying subject, but the universal is always said of some underlying subject. But perhaps the universal cannot be substance in the way the essence is, but is present in the essence, as animal is present in human being and horse? Then clearly there is some account of it. And it makes no difference even if there is not an account of everything in the substance; for this will be no less the substance of something, as human being is of the human being in which it is present, so that the same result will follow again: it will be the substance of that thing—animal, say—in which it is present as peculiar to it.
ἔτι δὲ καὶ ἀδύνατον καὶ ἄτοπον τὸ τόδε καὶ οὐσίαν, εἰ ἔστιν ἔκ τινων, μὴ ἐξ οὐσιῶν εἶναι μηδ' ἐκ τοῦ τόδε τι ἀλλ' ἐκ ποιοῦ· πρότερον γὰρ ἔσται μὴ οὐσία τε καὶ τὸ ποιὸν οὐσίας τε καὶ τοῦ τόδε. ὅπερ ἀδύνατον· οὔτε λόγῳ γὰρ οὔτε χρόνῳ οὔτε γενέσει οἷόν τε τὰ πάθη τῆς οὐσίας εἶναι πρότερα· ἔσται γὰρ καὶ χωριστά. ἔτι τῷ Σωκράτει ἐνυπάρξει οὐσία οὐσίᾳ, ὥστε δυοῖν ἔσται οὐσία. ὅλως δὲ συμβαίνει, εἰ ἔστιν οὐσία ὁ ἄνθρωπος καὶ ὅσα οὕτω λέγεται, μηθὲν τῶν ἐν τῷ λόγῳ εἶναι μηδενὸς οὐσίαν	Further, it is both impossible and absurd that a "this" and a substance, if it is composed of anything, should be composed not of substances or of a "this" but of a quality; for then what is not substance, the quality, will be prior to substance and to the "this." That is impossible; for neither in account nor in time nor in coming-to-be can affections be prior to substance, since then they would also be separable. Further, a substance will be

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μηδὲ χωρὶς ὑπάρχειν αὐτῶν μηδ' ἐν ἄλλῳ, λέγω δ' οἷον οὐκ εἶναί τι ζῷον παρὰ τὰ τινά, οὐδ' ἄλλο τῶν ἐν τοῖς λόγοις οὐδέν.

ἔκ τε δὴ τούτων θεωροῦσι φανερὸν ὅτι οὐδὲν τῶν καθόλου ὑπαρχόντων οὐσία ἐστί, καὶ ὅτι οὐδὲν σημαίνει τῶν κοινῇ κατηγορουμένων τόδε τι, [1039a] ἀλλὰ τοιόνδε. εἰ δὲ μή, ἄλλα τε πολλὰ συμβαίνει καὶ ὁ τρίτος ἄνθρωπος. ἔτι δὲ καὶ ὧδε δῆλον. ἀδύνατον γὰρ οὐσίαν ἐξ οὐσιῶν εἶναι ἐνυπαρχουσῶν ὡς ἐντελεχείᾳ· τὰ γὰρ δύο οὕτως ἐντελεχείᾳ οὐδέποτε ἓν ἐντελεχείᾳ, ἀλλ' ἐὰν δυνάμει δύο ᾖ, ἔσται ἕν (οἷον ἡ διπλασία ἐκ δύο ἡμίσεων δυνάμει γε· ἡ γὰρ ἐντελέχεια χωρίζει), ὥστ' εἰ ἡ οὐσία ἕν, οὐκ ἔσται ἐξ οὐσιῶν ἐνυπαρχουσῶν καὶ κατὰ τοῦτον τὸν τρόπον, ὃν λέγει Δημόκριτος ὀρθῶς· ἀδύνατον γὰρ εἶναί φησιν ἐκ δύο ἓν ἢ ἐξ ἑνὸς δύο γενέσθαι· τὰ γὰρ μεγέθη τὰ ἄτομα τὰς οὐσίας ποιεῖ.

[1039a] ὁμοίως τοίνυν δῆλον ὅτι καὶ ἐπ' ἀριθμοῦ ἕξει, εἴπερ ἐστὶν ὁ ἀριθμὸς σύνθεσις μονάδων, ὥσπερ λέγεται ὑπό τινων· ἢ γὰρ οὐχ ἓν ἡ δυὰς ἢ οὐκ ἔστι μονὰς ἐν αὐτῇ ἐντελεχείᾳ.—ἔχει δὲ τὸ συμβαῖνον ἀπορίαν. εἰ γὰρ μήτε ἐκ τῶν καθόλου οἷόν τ' εἶναι μηδεμίαν οὐσίαν διὰ τὸ τοιόνδε ἀλλὰ μὴ τόδε τι σημαίνειν, μήτ' ἐξ οὐσιῶν ἐνδέχεται ἐντελεχείᾳ εἶναι μηδεμίαν οὐσίαν σύνθετον, ἀσύνθετον ἂν εἴη οὐσία πᾶσα, ὥστ' οὐδὲ λόγος ἂν εἴη οὐδεμιᾶς οὐσίας. ἀλλὰ μὴν δοκεῖ γε πᾶσι καὶ ἐλέχθη πάλαι ἢ μόνον οὐσίας εἶναι ὅρον ἢ μάλιστα· νῦν δ' οὐδὲ ταύτης. οὐδενὸς ἄρ' ἔσται ὁρισμός· ἢ τρόπον μέν τινα ἔσται τρόπον δέ τινα οὔ. δῆλον δ' ἔσται τὸ λεγόμενον ἐκ τῶν ὕστερον μᾶλλον.

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present in Socrates, a substance, so that it will be the substance of two things. In general it follows, if human being and things spoken of in this way are substance, that nothing in the account is the substance of anything, or exists separately from them or in something else. I mean, for instance, that there is no animal beyond the particular animals, nor any other of the items in the accounts.

If we study the matter from these points, then, it is evident that nothing that belongs universally is substance, and that none of the things predicated in common signifies a "this," [1039a] but a "such." Otherwise many other consequences follow, including the third man. It is also clear from this: it is impossible for a substance to be composed of substances present in it in actuality. For two things that are in actuality in this way are never one in actuality; but if they are two potentially, they will be one (the double, for instance, is composed of two halves—potentially, that is, since actuality separates). So if substance is one, it will not be composed of substances present in it, and in this way what Democritus says is correct. He says that it is impossible for one thing to come to be from two or two from one; for he makes the indivisible magnitudes the substances.[12]

Clearly, then, the same will hold of number too, if number is a combination of units, as some say it is. For either the dyad is not one, or there is no unit in it in actuality.—But the result involves a puzzle. For if no substance can be composed of universals, because they signify a "such" and not a "this," and if no substance can be composed of substances present in actuality, then every substance would be incomposite, so that there would be no account of any substance either. Yet everyone thinks, and it was said long ago, that there is definition either of substance alone or of substance most of all; and now it turns out there is not even of this. So there will be definition of nothing. Or perhaps in one way there will be and in another there will not. What is meant will become clearer from what follows.

12 The "third man" is a regress argument against the Forms: if human beings share a Form of human being, a further Form is needed for them and that Form, and so on without end.

AGAINST FORMS COMPOSED OF GENUS AND DIFFERENTIA

If Forms are substances, their genus and differentiae lead to absurdities.

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φανερὸν δ' ἐξ αὐτῶν τούτων τὸ συμβαῖνον καὶ τοῖς τὰς ἰδέας λέγουσιν οὐσίας τε χωριστὰς εἶναι καὶ ἅμα τὸ εἶδος ἐκ τοῦ γένους ποιοῦσι καὶ τῶν διαφορῶν. εἰ γὰρ ἔστι τὰ εἴδη, καὶ τὸ ζῷον ἐν τῷ ἀνθρώπῳ καὶ ἵππῳ, ἤτοι ἓν καὶ ταὐτὸν τῷ ἀριθμῷ ἐστὶν ἢ ἕτερον· τῷ μὲν γὰρ λόγῳ δῆλον ὅτι ἕν· τὸν γὰρ αὐτὸν διέξεισι λόγον ὁ λέγων ἐν ἑκατέρῳ. εἰ οὖν ἐστί τις ἄνθρωπος αὐτὸς καθ' αὑτὸν τόδε τι καὶ κεχωρισμένον, ἀνάγκη καὶ ἐξ ὧν, οἷον τὸ ζῷον καὶ τὸ δίπουν, τόδε τι σημαίνειν καὶ εἶναι χωριστὰ καὶ οὐσίας· ὥστε καὶ τὸ ζῷον.

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From these same points it is also evident what follows for those who say that the Forms are substances and separable, and at the same time make the Form out of the genus and the differentiae. For if there are Forms, and animal is present in human being and in horse, then it is either one and the same in number or different. In account, clearly, it is one; for whoever states the account goes through the same account in each case. If, then, there is a human being itself by itself that is a "this" and separated, then the things it is composed of, such as animal and two-footed, must also signify a "this" and be separable and substances. So animal must be too.

εἰ μὲν οὖν τὸ αὐτὸ καὶ ἓν τὸ ἐν τῷ ἵππῳ καὶ τῷ ἀνθρώπῳ, ὥσπερ σὺ σαυτῷ, πῶς τὸ ἓν ἐν τοῖς οὖσι χωρὶς ἓν ἔσται, [1039b] καὶ διὰ τί οὐ καὶ χωρὶς αὑτοῦ ἔσται τὸ ζῷον τοῦτο; ἔπειτα εἰ μὲν μεθέξει τοῦ δίποδος καὶ τοῦ πολύποδος, ἀδύνατόν τι συμβαίνει, τἀναντία γὰρ ἅμα ὑπάρξει αὐτῷ ἑνὶ καὶ τῷδέ τινι ὄντι· εἰ δὲ μή, τίς ὁ τρόπος ὅταν εἴπῃ τις τὸ ζῷον εἶναι δίπουν ἢ πεζόν; ἀλλ' ἴσως σύγκειται καὶ ἅπτεται ἢ μέμικται· ἀλλὰ πάντα ἄτοπα. ἀλλ' ἕτερον ἐν ἑκάστῳ· οὐκοῦν ἄπειρα ὡς ἔπος εἰπεῖν ἔσται ὧν ἡ οὐσία ζῷον· οὐ γὰρ κατὰ συμβεβηκὸς ἐκ ζῴου ἄνθρωπος.

Now if the animal in the horse and in the human being is one and the same, as you are with yourself, how will the one that is in things that exist separately be one, [1039b] and why will this animal not also be separated from itself? Then, if it is to participate in two-footed and in many-footed, something impossible follows: contraries will belong at the same time to it, though it is one and a "this." And if it does not, what is the manner in which someone says that the animal is two-footed or footed? Perhaps they are put together and in contact, or mixed? But all of this is absurd. Suppose instead that the animal is different in each. Then there will be practically infinitely many things whose substance is animal; for it is not accidentally that human being is composed of animal.

1039b ἔτι πολλὰ ἔσται αὐτὸ τὸ ζῷον· οὐσία τε γὰρ τὸ ἐν ἑκάστῳ ζῷον (οὐ γὰρ κατ' ἄλλο λέγεται· εἰ δὲ μή, ἐξ ἐκείνου ἔσται ὁ ἄνθρωπος καὶ γένος αὐτοῦ ἐκεῖνο), καὶ ἔτι ἰδέαι ἅπαντα ἐξ ὧν ὁ ἄνθρωπος· οὐκοῦν οὐκ ἄλλου μὲν ἰδέα ἔσται ἄλλου δ' οὐσία (ἀδύνατον γάρ)· αὐτὸ ἄρα ζῷον ἓν ἕκαστον ἔσται τῶν ἐν τοῖς ζῴοις. ἔτι ἐκ τίνος τοῦτο, καὶ πῶς ἐξ αὐτοῦ ζῴου; ἢ πῶς οἷόν τε εἶναι τὸ ζῷον, ᾧ οὐσία τοῦτο αὐτό, παρ' αὐτὸ τὸ ζῷον; ἔτι δ' ἐπὶ τῶν αἰσθητῶν ταῦτά τε συμβαίνει καὶ τούτων ἀτοπώτερα. εἰ δὴ ἀδύνατον οὕτως ἔχειν, δῆλον ὅτι οὐκ ἔστιν εἴδη αὐτῶν οὕτως ὥς τινές φασιν.

Further, animal itself will be many. For the animal in each species is substance, since it is not said by reference to anything else (otherwise human being would be composed of that other thing, and that would be its genus); and further, all the things of which human being is composed will be Forms. Now nothing will be the Form of one thing and the substance of another (that is impossible); so each of the animals in the animal species will be animal itself. Further, what will this animal be composed of, and how will it be composed of animal itself? Or how can the animal whose substance is just this exist beyond animal itself? Further, in the case of perceptible things these consequences fol-

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	low, and others more absurd still. If, then, it is impossible for things to be so, it is clear that there are not Forms of these in the way some people say.

INDIVIDUALS CANNOT BE DEFINED

Neither perishable particulars nor the Forms can be defined.

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ἐπεὶ δ' ἡ οὐσία ἑτέρα, τό τε σύνολον καὶ ὁ λόγος (λέγω δ' ὅτι ἡ μὲν οὕτως ἐστὶν οὐσία, συν τῇ ὕλῃ συνειλημμένος ὁ λόγος, ἡ δ' ὁ λόγος ὅλως), ὅσαι μὲν οὖν οὕτω λέγονται, τούτων μὲν ἔστι φθορά (καὶ γὰρ γένεσις), τοῦ δὲ λόγου οὐκ ἔστιν οὕτως ὥστε φθείρεσθαι (οὐδὲ γὰρ γένεσις, οὐ γὰρ γίγνεται τὸ οἰκίᾳ εἶναι ἀλλὰ τὸ τῇδε τῇ οἰκίᾳ), ἀλλ' ἄνευ γενέσεως καὶ φθορᾶς εἰσὶ καὶ οὐκ εἰσίν· δέδεικται γὰρ ὅτι οὐδεὶς ταῦτα γεννᾷ οὐδὲ ποιεῖ. διὰ τοῦτο δὲ καὶ τῶν οὐσιῶν τῶν αἰσθητῶν τῶν καθ' ἕκαστα οὔτε ὁρισμὸς οὔτε ἀπόδειξις ἔστιν, ὅτι ἔχουσιν ὕλην ἧς ἡ φύσις τοιαύτη ὥστ' ἐνδέχεσθαι καὶ εἶναι καὶ μή· διὸ φθαρτὰ πάντα τὰ καθ' ἕκαστα αὐτῶν.	Since substance is of two kinds, the composite and the account (I mean that one kind of substance is the account taken together with the matter, the other the account in general), substances spoken of in the first way are subject to destruction, since they are also subject to coming-to-be. But the account is not such as to be destroyed, since it does not come to be either (for being a house does not come to be, but only being this house); rather, accounts are and are not without coming-to-be and destruction, for it has been shown that no one begets or makes them. It is for this reason, too, that there is neither definition nor demonstration of particular perceptible substances: they have matter whose nature is such that it is capable both of being and of not being. That is why all the particular instances of them are perishable.
εἰ οὖν ἥ τ' ἀπόδειξις τῶν ἀναγκαίων καὶ ὁ ὁρισμὸς ἐπιστημονικόν, καὶ οὐκ ἐνδέχεται, ὥσπερ οὐδ' ἐπιστήμην ὁτὲ μὲν ἐπιστήμην ὁτὲ δ' ἄγνοιαν εἶναι, ἀλλὰ δόξα τὸ τοιοῦτόν ἐστιν, οὕτως οὐδ' ἀπόδειξιν οὐδ' ὁρισμόν, ἀλλὰ δόξα ἐστὶ τοῦ ἐνδεχομένου ἄλλως ἔχειν, [1040a] δῆλον ὅτι οὐκ ἂν εἴη αὐτῶν οὔτε ὁρισμὸς οὔτε ἀπόδειξις. ἄδηλά τε γὰρ τὰ φθειρόμενα τοῖς ἔχουσι τὴν ἐπιστήμην, ὅταν ἐκ τῆς αἰσθήσεως ἀπέλθῃ, καὶ σωζομένων τῶν λόγων ἐν τῇ ψυχῇ τῶν αὐτῶν οὐκ ἔσται οὔτε ὁρισμὸς ἔτι οὔτε ἀπόδειξις. διὸ δεῖ, τῶν πρὸς ὅρον ὅταν τις ὁρίζηταί τι τῶν καθ' ἕκαστον, μὴ ἀγνοεῖν ὅτι ἀεὶ ἀναιρεῖν ἔστιν· οὐ γὰρ ἐνδέχεται ὁρίσασθαι. οὐδὲ δὴ ἰδέαν οὐδεμίαν ἔστιν ὁρίσασθαι.	Now demonstration is of what is necessary, and definition is a matter of scientific knowledge; and just as knowledge cannot be at one time knowledge and at another ignorance—it is opinion that is like that—so too demonstration and definition cannot be, but it is opinion that concerns what can be otherwise. [1040a] If so, it is clear that there could be neither definition nor demonstration of these things. For perishing things are unclear to those who have knowledge of them, once they have passed out of perception; and though the accounts are preserved in the soul, there will no longer be either definition or demonstration of them. That is why, in matters of definition, when someone is defining one of the particulars, he must not fail to recognize that his definition can always be overturned; for it is impossible to define them. Nor, indeed, is it possible to define any Form.
1040a τῶν γὰρ καθ' ἕκαστον ἡ ἰδέα, ὡς φασί, καὶ χωριστή· ἀναγκαῖον δὲ ἐξ ὀνομάτων εἶναι τὸν λόγον, ὄνομα δ' οὐ ποιήσει ὁ ὁριζόμενος (ἄγνωστον γὰρ ἔσται), τὰ δὲ κείμενα κοινὰ πᾶσιν· ἀνάγκη ἄρα ὑπάρχειν καὶ ἄλλῳ ταῦτα· οἷον εἴ τις σὲ ὁρίσαιτο, ζῷον ἐρεῖ ἰσχνὸν ἢ λευκὸν ἢ ἕτερόν τι ὃ καὶ ἄλλῳ ὑπάρξει.	For the Form, as they say, is a particular, and separable. But the account must be composed of words, and the one defining will not make up a word (for it would not be understood), and the established words are common to all the things they apply to. So these must also belong to something

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εἰ δέ τις φαίη μηδὲν κωλύειν χωρὶς μὲν πάντα πολλοῖς ἅμα δὲ μόνῳ τούτῳ ὑπάρχειν, λεκτέον πρῶτον μὲν ὅτι καὶ ἀμφοῖν, οἷον τὸ ζῷον δίπουν τῷ ζῴῳ καὶ τῷ δίποδι (καὶ τοῦτο ἐπὶ μὲν τῶν ἀϊδίων καὶ ἀνάγκη εἶναι, πρότερά γ' ὄντα καὶ μέρη τοῦ συνθέτου· ἀλλὰ μὴν καὶ χωριστά, εἴπερ τὸ ἄνθρωπος χωριστόν· ἢ γὰρ οὐθὲν ἢ ἄμφω· εἰ μὲν οὖν μηθέν, οὐκ ἔσται τὸ γένος παρὰ τὰ εἴδη, εἰ δ' ἔσται, καὶ ἡ διαφορά)· εἶθ' ὅτι πρότερα τῷ εἶναι· ταῦτα δὲ οὐκ ἀνταναιρεῖται. ἔπειτα εἰ ἐξ ἰδεῶν αἱ ἰδέαι (ἀσυνθετώτερα γὰρ τὰ ἐξ ὧν), ἔτι ἐπὶ πολλῶν δεήσει κἀκεῖνα κατηγορεῖσθαι ἐξ ὧν ἡ ἰδέα, οἷον τὸ ζῷον καὶ τὸ δίπουν. εἰ δὲ μή, πῶς γνωρισθήσεται;

ἔσται γὰρ ἰδέα τις ἣν ἀδύνατον ἐπὶ πλειόνων κατηγορῆσαι ἢ ἑνός. οὐ δοκεῖ δέ, ἀλλὰ πᾶσα ἰδέα εἶναι μεθεκτή. ὥσπερ οὖν εἴρηται, λανθάνει ὅτι ἀδύνατον ὁρίσασθαι ἐν τοῖς ἀϊδίοις, μάλιστα δὲ ὅσα μοναχά, οἷον ἥλιος ἢ σελήνη. οὐ μόνον γὰρ διαμαρτάνουσι τῷ προστιθέναι τοιαῦτα ὧν ἀφαιρουμένων ἔτι ἔσται ἥλιος, ὥσπερ τὸ περὶ γῆν ἰὸν ἢ νυκτικρυφές (ἂν γὰρ στῇ ἢ φανῇ, οὐκέτι ἔσται ἥλιος· ἀλλ' ἄτοπον εἰ μή· ὁ γὰρ ἥλιος οὐσίαν τινὰ σημαίνει)· ἔτι ὅσα ἐπ' ἄλλου ἐνδέχεται, οἷον ἐὰν ἕτερος γένηται τοιοῦτος, δῆλον ὅτι ἥλιος ἔσται· κοινὸς ἄρα ὁ λόγος· [1040b] ἀλλ' ἦν τῶν καθ' ἕκαστα ὁ ἥλιος, ὥσπερ Κλέων ἢ Σωκράτης· ἐπεὶ διὰ τί οὐδεὶς ὅρον ἐκφέρει αὐτῶν ἰδέας; γένοιτο γὰρ ἂν δῆλον πειρωμένων ὅτι ἀληθὲς τὸ νῦν εἰρημένον.

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else. If someone were to define you, for instance, he will say you are a lean animal, or pale, or something else that will also belong to something else.

If someone were to say that nothing prevents all the terms from belonging separately to many things but together to this alone, we must reply, first, that they also belong to both: "two-footed animal," for instance, belongs to animal and to two-footed. (In the case of eternal things this must even be so, since they are prior and parts of the compound; and indeed they are separable, if human being is separable. For either neither is separable or both are. If neither is, the genus will not exist beyond the species; if it does, the differentia will too.) Second, that they are prior in being, and prior things are not destroyed along with what is posterior. Next, if Forms are composed of Forms (for the components are less composite), the components of the Form, such as animal and two-footed, will also have to be predicated of many things. If not, how will they be known?

For there will then be some Form which cannot be predicated of more than one thing. But this is not what they think; they think every Form can be participated in. So, as has been said, it goes unnoticed that it is impossible to define in the case of eternal things, especially those that are unique, such as the sun or the moon. For people go wrong not only by adding the sort of attributes which, if removed, would still leave it the sun—"going round the earth," for instance, or "hidden at night" (for if it stood still or were visible at night, it would no longer be the sun; but it is absurd if it would not be, since "the sun" signifies a certain substance)—but also by adding attributes that can belong to something else: if, for instance, another thing of this kind were to come to be, clearly it would be a sun. So the account is common; [1040b] but the sun was supposed to be one of the particulars, like Cleon or Socrates. After all, why does none of them put forward a definition of a Form? It would become clear, if they tried, that what has just been said is true.[13]

13 Cleon was a leading Athenian politician of the Peloponnesian War, here simply an example of an individual.

POTENTIALITIES, UNITY AND BEING

Parts, elements, being and unity are not substances; the Forms rightly separate but wrongly universalize.

	GREEK	ENGLISH
1040b	φανερὸν δὲ ὅτι καὶ τῶν δοκουσῶν εἶναι οὐσιῶν αἱ πλεῖσται δυνάμεις εἰσί, τά τε μόρια τῶν ζῴων (οὐθὲν γὰρ κεχωρισμένον αὐτῶν ἐστίν· ὅταν δὲ χωρισθῇ, καὶ τότε ὄντα ὡς ὕλη πάντα) καὶ γῆ καὶ πῦρ καὶ ἀήρ· οὐδὲν γὰρ αὐτῶν ἕν ἐστιν, ἀλλ' οἷον σωρός, πρὶν ἢ πεφθῇ καὶ γένηταί τι ἐξ αὐτῶν ἕν. μάλιστα δ' ἄν τις τὰ τῶν ἐμψύχων ὑπολάβοι μόρια καὶ τὰ τῆς ψυχῆς πάρεγγυς ἄμφω γίγνεσθαι, ὄντα καὶ ἐντελεχείᾳ καὶ δυνάμει, τῷ ἀρχὰς ἔχειν κινήσεως ἀπό τινος ἐν ταῖς καμπαῖς· διὸ ἔνια ζῷα διαιρούμενα ζῇ. ἀλλ' ὅμως δυνάμει πάντ' ἔσται, ὅταν ᾖ ἓν καὶ συνεχὲς φύσει, ἀλλὰ μὴ βίᾳ ἢ συμφύσει· τὸ γὰρ τοιοῦτον πήρωσις.	It is evident too that most of the things thought to be substances are potentialities. So it is with the parts of animals (for none of them exists separated, and when they are separated, they too all exist only as matter), and earth and fire and air. For none of them is one; each is like a heap, until they are worked up and something one comes to be from them. One might suppose above all that the parts of ensouled things, and the parts of the soul, come close to being both, existing both in actuality and in potentiality, because they have starting points of motion from something in their joints; that is why some animals live when divided. Still, they will all exist potentially when they are one and continuous by nature, and not by force or by growing together; for that sort of thing is a deformity.[14]
	ἐπεὶ δὲ τὸ ἓν λέγεται ὥσπερ καὶ τὸ ὄν, καὶ ἡ οὐσία ἡ τοῦ ἑνὸς μία, καὶ ὧν μία ἀριθμῷ ἓν ἀριθμῷ, φανερὸν ὅτι οὔτε τὸ ἓν οὔτε τὸ ὂν ἐνδέχεται οὐσίαν εἶναι τῶν πραγμάτων, ὥσπερ οὐδὲ τὸ στοιχείῳ εἶναι ἢ ἀρχῇ· ἀλλὰ ζητοῦμεν τίς οὖν ἡ ἀρχή, ἵνα εἰς γνωριμώτερον ἀναγάγωμεν. μᾶλλον μὲν οὖν τούτων οὐσία τὸ ὂν καὶ ἓν ἢ ἥ τε ἀρχὴ καὶ τὸ στοιχεῖον καὶ τὸ αἴτιον, οὔπω δὲ οὐδὲ ταῦτα, εἴπερ μηδ' ἄλλο κοινὸν μηδὲν οὐσία· οὐδενὶ γὰρ ὑπάρχει ἡ οὐσία ἀλλ' ἢ αὐτῇ τε καὶ τῷ ἔχοντι αὐτήν, οὗ ἐστὶν οὐσία. ἔτι τὸ ἓν πολλαχῇ οὐκ ἂν εἴη ἅμα, τὸ δὲ κοινὸν ἅμα πολλαχῇ ὑπάρχει· ὥστε δῆλον ὅτι οὐδὲν τῶν καθόλου ὑπάρχει παρὰ τὰ καθ' ἕκαστα χωρίς.	Since "one" is said in the same ways as "being," and the substance of what is one is one, and things whose substance is one in number are one in number, it is evident that neither unity nor being can be the substance of things, just as being an element or a principle cannot either. But we ask what the principle is so that we may lead the inquiry back to something more knowable. Of these, then, being and unity are more substance than principle, element, and cause are; but not even these are substance yet, if indeed nothing else that is common is substance either. For substance belongs to nothing except itself and what has it, whose substance it is. Further, what is one cannot be in many places at once, but what is common belongs to many places at once; so it is clear that no universal exists separately beyond the particulars.
	ἀλλ' οἱ τὰ εἴδη λέγοντες τῇ μὲν ὀρθῶς λέγουσι χωρίζοντες αὐτά, εἴπερ οὐσίαι εἰσί, τῇ δ' οὐκ ὀρθῶς, ὅτι τὸ ἓν ἐπὶ πολλῶν εἶδος λέγουσιν. αἴτιον δ' ὅτι οὐκ ἔχουσιν ἀποδοῦναι τίνες αἱ τοιαῦται οὐσίαι αἱ ἄφθαρτοι παρὰ τὰς καθ' ἕκαστα καὶ αἰσθητάς· ποιοῦσιν οὖν τὰς αὐτὰς τῷ εἴδει τοῖς φθαρτοῖς (ταύτας γὰρ ἴσμεν), αὐτοάνθρωπον καὶ αὐτόϊππον, προστιθέντες τοῖς αἰσθητοῖς τὸ ῥῆμα τὸ αὐτό. καίτοι κἂν εἰ μὴ ἑωράκειμεν	But those who speak of the Forms are in one respect right to separate them, if they are substances, but in another respect wrong, because they say that the one over many is a Form. The reason is that they cannot say what these imperishable substances, beyond the particular and perceptible ones, are. So they make them the same in kind as the perishable ones (for these we know):

14 "Worked up" renders a word meaning "cooked" or "digested," Aristotle's term for natural processes that unify material.

GREEK

τὰ ἄστρα, [1041a] οὐδὲν ἂν ἧττον, οἶμαι, ἦσαν οὐσίαι ἀΐδιοι παρ' ἃς ἡμεῖς ᾔδειμεν· ὥστε καὶ νῦν εἰ μὴ ἔχομεν τίνες εἰσίν, ἀλλ' εἶναί γέ τινας ἴσως ἀναγκαῖον. ὅτι μὲν οὖν οὔτε τῶν καθόλου λεγομένων οὐδὲν οὐσία οὔτ' ἐστὶν οὐσία οὐδεμία ἐξ οὐσιῶν, δῆλον.

ENGLISH

the human being itself and the horse itself, adding the word "itself" to the perceptible things. And yet even if we had not seen the stars, [1041a] they would no less, I think, have been eternal substances beyond the ones we knew. So now too, even if we cannot say what they are, it is still perhaps necessary that there be some. It is clear, then, that nothing spoken of universally is substance, and that no substance is composed of substances.

SUBSTANCE AS CAUSE

Substance is the cause that makes matter a thing, as a syllable is more than its letters.

GREEK

1041a τί δὲ χρὴ λέγειν καὶ ὁποῖόν τι τὴν οὐσίαν, πάλιν ἄλλην οἷον ἀρχὴν ποιησάμενοι λέγωμεν· ἴσως γὰρ ἐκ τούτων ἔσται δῆλον καὶ περὶ ἐκείνης τῆς οὐσίας ἥτις ἐστὶ κεχωρισμένη τῶν αἰσθητῶν οὐσιῶν. ἐπεὶ οὖν ἡ οὐσία ἀρχὴ καὶ αἰτία τις ἐστίν, ἐντεῦθεν μετιτέον. ζητεῖται δὲ τὸ διὰ τί ἀεὶ οὕτως, διὰ τί ἄλλο ἄλλῳ τινὶ ὑπάρχει. τὸ γὰρ ζητεῖν διὰ τί ὁ μουσικὸς ἄνθρωπος μουσικὸς ἄνθρωπός ἐστιν, ἤτοι ἐστὶ τὸ εἰρημένον ζητεῖν, διὰ τί ὁ ἄνθρωπος μουσικός ἐστιν, ἢ ἄλλο.

τὸ μὲν οὖν διὰ τί αὐτὸ ἐστιν αὐτό, οὐδέν ἐστι ζητεῖν (δεῖ γὰρ τὸ ὅτι καὶ τὸ εἶναι ὑπάρχειν δῆλα ὄντα—λέγω δ' οἷον ὅτι ἡ σελήνη ἐκλείπει—, αὐτὸ δὲ ὅτι αὐτό, εἷς λόγος καὶ μία αἰτία ἐπὶ πάντων, διὰ τί ὁ ἄνθρωπος ἄνθρωπος ἢ ὁ μουσικὸς μουσικός, πλὴν εἴ τις λέγοι ὅτι ἀδιαίρετον πρὸς αὐτὸ ἕκαστον, τοῦτο δ' ἦν τὸ ἑνὶ εἶναι· ἀλλὰ τοῦτο κοινόν γε κατὰ πάντων καὶ σύντομον)· ζητήσειε δ' ἄν τις διὰ τί ἄνθρωπός ἐστι ζῷον τοιονδί. τοῦτο μὲν τοίνυν δῆλον, ὅτι οὐ ζητεῖ διὰ τί ὅς ἐστιν ἄνθρωπος ἄνθρωπός ἐστιν· τὶ ἄρα κατά τινος ζητεῖ διὰ τί ὑπάρχει (ὅτι δ' ὑπάρχει, δεῖ δῆλον εἶναι· εἰ γὰρ μὴ οὕτως, οὐδὲν ζητεῖ), οἷον διὰ τί βροντᾷ; διὰ τί ψόφος γίγνεται ἐν τοῖς νέφεσιν;

ἄλλο γὰρ οὕτω κατ' ἄλλου ἐστὶ τὸ ζητούμενον. καὶ διὰ τί ταδί, οἷον πλίνθοι καὶ λίθοι, οἰκία ἐστίν; φανερὸν τοίνυν ὅτι ζητεῖ τὸ αἴτιον· τοῦτο δ' ἐστὶ τὸ τί ἦν εἶναι, ὡς εἰπεῖν λογικῶς, ὃ ἐπ' ἐνίων μέν ἐστι τίνος ἕνεκα, οἷον ἴσως ἐπ' οἰκίας ἢ κλίνης, ἐπ' ἐνίων δὲ τί ἐκίνησε πρῶτον· αἴτιον γὰρ καὶ τοῦτο. ἀλλὰ τὸ μὲν τοιοῦτον αἴτιον ἐπὶ τοῦ

ENGLISH

What, and what sort of thing, we ought to say substance is, let us state by making a fresh start, as it were. For perhaps from this it will also become clear about that substance which is separated from perceptible substances. Since, then, substance is a kind of principle and cause, we must proceed from here. The "why" is always sought in this way: why does one thing belong to some other thing? For to ask why the musical human being is a musical human being is either to ask what has been said—why the human being is musical—or something else.

Now to ask why a thing is itself is to ask nothing. (For the fact and the existence must already be clear—I mean, for instance, that the moon is eclipsed. But that a thing is itself is the one account and one cause for everything—why the human being is a human being, or the musical musical—unless one were to say that each thing is indivisible from itself, and this was what being one is; but this is a short answer that fits every case.) But one might ask why a human being is an animal of such-and-such a kind. Here, then, it is clear that one is not asking why he who is a human being is a human being. So one is asking why something belongs to something (that it belongs must be clear; if it is not, one is asking nothing)—for instance, why does it thunder? Why does a noise occur in the clouds?

For in this way what is being sought is one thing said of another. And why are these things here—bricks and stones, say—a house? It is evident, then, that one is seeking the cause. This is the essence, to speak in terms of accounts; in some cases it is that for the sake of which, as perhaps with a house

GREEK	ENGLISH
γίγνεσθαι ζητεῖται καὶ φθείρεσθαι, θάτερον δὲ καὶ ἐπὶ τοῦ εἶναι. λανθάνει δὲ μάλιστα τὸ ζητούμενον ἐν τοῖς μὴ κατ' ἀλλήλων λεγομένοις, [1041b] οἷον ἄνθρωπος τί ἐστι ζητεῖται διὰ τὸ ἁπλῶς λέγεσθαι ἀλλὰ μὴ διορίζειν ὅτι τάδε τόδε. ἀλλὰ δεῖ διαρθρώσαντας ζητεῖν· εἰ δὲ μή, κοινὸν τοῦ μηθὲν ζητεῖν καὶ τοῦ ζητεῖν τι γίγνεται.	or a bed, and in others it is what first initiated the motion, for this too is a cause. But this second sort of cause is sought in the case of coming to be and perishing, the other in the case of being as well. What is being sought escapes notice most of all where things are not said of one another— [1041b] as when one asks what a human being is—because the question is put simply and does not specify that these things are this. We must articulate the question before we search; otherwise it becomes something between seeking nothing and seeking something.
1041b ἐπεὶ δὲ δεῖ ἔχειν τε καὶ ὑπάρχειν τὸ εἶναι, δῆλον δὴ ὅτι τὴν ὕλην ζητεῖ διὰ τί ⟨τί⟩ ἐστιν· οἷον οἰκία ταδὶ διὰ τί; ὅτι ὑπάρχει ὃ ἦν οἰκίᾳ εἶναι. καὶ ἄνθρωπος τοδί, ἢ τὸ σῶμα τοῦτο τοδὶ ἔχον. ὥστε τὸ αἴτιον ζητεῖται τῆς ὕλης (τοῦτο δ' ἐστὶ τὸ εἶδος) ᾧ τί ἐστιν· τοῦτο δ' ἡ οὐσία.	Since the being of the thing must already be given and belong to it, it is clear that one is asking about the matter, why it is something. For instance, why are these things here a house? Because what it is to be a house belongs to them. And why is this a human being, or this body in this state? So what is sought is the cause of the matter—that is, the form—by which it is something; and this is the substance.
φανερὸν τοίνυν ὅτι ἐπὶ τῶν ἁπλῶν οὐκ ἔστι ζήτησις οὐδὲ δίδαξις, ἀλλ' ἕτερος τρόπος τῆς ζητήσεως τῶν τοιούτων. —ἐπεὶ δὲ τὸ ἔκ τινος σύνθετον οὕτως ὥστε ἓν εἶναι τὸ πᾶν, [ἂν] μὴ ὡς σωρὸς ἀλλ' ὡς ἡ συλλαβή—ἡ δὲ συλλαβὴ οὐκ ἔστι τὰ στοιχεῖα, οὐδὲ τῷ ⟨βα⟩ ταὐτὸ τὸ ⟨β⟩ καὶ ⟨α⟩, οὐδ' ἡ σὰρξ πῦρ καὶ γῆ (διαλυθέντων γὰρ τὰ μὲν οὐκέτι ἔστιν, οἷον ἡ σὰρξ καὶ ἡ συλλαβή, τὰ δὲ στοιχεῖα ἔστι, καὶ τὸ πῦρ καὶ ἡ γῆ)·	It is evident, then, that in the case of simple things there is no seeking or teaching; there is another way of inquiring into such things.—Now take what is composed of something in such a way that the whole is one, not like a heap but like a syllable. The syllable is not its letters—ba is not the same as b and a—nor is flesh fire and earth; for when they are separated, the wholes, such as the flesh and the syllable, no longer exist, but the letters do, and so do fire and earth.
ἔστιν ἄρα τι ἡ συλλαβή, οὐ μόνον τὰ στοιχεῖα τὸ φωνῆεν καὶ ἄφωνον ἀλλὰ καὶ ἕτερόν τι, καὶ ἡ σὰρξ οὐ μόνον πῦρ καὶ γῆ ἢ τὸ θερμὸν καὶ ψυχρὸν ἀλλὰ καὶ ἕτερόν τι—εἰ τοίνυν ἀνάγκη κἀκεῖνο ἢ στοιχεῖον ἢ ἐκ στοιχείων εἶναι, εἰ μὲν στοιχεῖον, πάλιν ὁ αὐτὸς ἔσται λόγος (ἐκ τούτου γὰρ καὶ πυρὸς καὶ γῆς ἔσται ἡ σὰρξ καὶ ἔτι ἄλλου, ὥστ' εἰς ἄπειρον βαδιεῖται)· εἰ δὲ ἐκ στοιχείου, δῆλον ὅτι οὐχ ἑνὸς ἀλλὰ πλειόνων, ἢ ἐκεῖνο αὐτὸ ἔσται, ὥστε πάλιν ἐπὶ τούτου τὸν αὐτὸν ἐροῦμεν λόγον καὶ ἐπὶ τῆς σαρκὸς ἢ συλλαβῆς.	The syllable, then, is something—not only its letters, the vowel and the consonant, but also something else; and flesh is not only fire and earth, or the hot and the cold, but also something else. If, then, that something must itself be either an element or composed of elements, then, if it is an element, the same argument will apply again: flesh will be composed of this and fire and earth and yet something else, so that it will go on to infinity. And if it is composed of elements, clearly it is composed not of one but of more than one, or else it will be that element itself; so again we shall use the same argument about it as about flesh or the syllable.
δόξειε δ' ἂν εἶναί τι τοῦτο καὶ οὐ στοιχεῖον, καὶ αἴτιόν γε τοῦ εἶναι τοδὶ μὲν σάρκα τοδὶ δὲ συλλαβήν· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. οὐσία δὲ ἑκάστου μὲν τοῦτο (τοῦτο γὰρ αἴτιον πρῶτον τοῦ εἶναι)—ἐπεὶ δ' ἔνια οὐκ οὐσίαι τῶν	But it would seem that this is something, and not an element, and that it is the cause of this being flesh and that a syllable, and similarly in the other cases. And this is the substance of each thing,

GREEK	ENGLISH
πραγμάτων, ἀλλ᾽ ὅσαι οὐσίαι, κατὰ φύσιν καὶ φύσει συνεστήκασι, φανείη ἂν [καὶ] αὕτη ἡ φύσις οὐσία, ἥ ἐστιν οὐ στοιχεῖον ἀλλ᾽ ἀρχή—· στοιχεῖον δ᾽ ἐστὶν εἰς ὃ διαιρεῖται ἐνυπάρχον ὡς ὕλην, οἷον τῆς συλλαβῆς τὸ ⟨α⟩ καὶ τὸ ⟨β⟩.	since it is the primary cause of its being. (And since some things are not substances, but those that are substances are constituted in accordance with nature and by nature, this nature too would appear to be substance, which is not an element but a principle.) An element is that into which a thing is divided and which is present in it as matter—the a and the b of the syllable, for instance.

Book Eta (VIII)

Matter, form, and sensible substance.

CHAPTER 1

	GREEK	ENGLISH
1042a	ἐκ δὴ τῶν εἰρημένων συλλογίσασθαι δεῖ καὶ συναγαγόντας τὸ κεφάλαιον τέλος ἐπιθεῖναι. εἴρηται δὴ ὅτι τῶν οὐσιῶν ζητεῖται τὰ αἴτια καὶ αἱ ἀρχαὶ καὶ τὰ στοιχεῖα. οὐσίαι δὲ αἱ μὲν ὁμολογούμεναί εἰσιν ὑπὸ πάντων, περὶ δὲ ἐνίων ἰδίᾳ τινὲς ἀπεφήναντο· ὁμολογούμεναι μὲν αἱ φυσικαί, οἷον πῦρ γῆ ὕδωρ ἀὴρ καὶ τἆλλα τὰ ἁπλᾶ σώματα, ἔπειτα τὰ φυτὰ καὶ τὰ μόρια αὐτῶν, καὶ τὰ ζῷα καὶ τὰ μόρια τῶν ζῴων, καὶ τέλος ὁ οὐρανὸς καὶ τὰ μόρια τοῦ οὐρανοῦ· ἰδίᾳ δέ τινες οὐσίας λέγουσιν εἶναι τά τ’ εἴδη καὶ τὰ μαθηματικά.	We must now draw conclusions from what has been said, gather up the main points, and bring the discussion to a close. We have said that what is sought are the causes and principles and elements of substances. Some substances are agreed on by everyone, but about some, certain people have declared their own views. The agreed ones are the natural substances, such as fire, earth, water, air, and the other simple bodies; next, plants and their parts, and animals and the parts of animals; and finally the heavens and the parts of the heavens. Certain people, however, say on their own account that the Forms and the objects of mathematics are substances.
	ἄλλας δὲ δὴ συμβαίνει ἐκ τῶν λόγων οὐσίας εἶναι, τὸ τί ἦν εἶναι καὶ τὸ ὑποκείμενον· ἔτι ἄλλως τὸ γένος μᾶλλον τῶν εἰδῶν καὶ τὸ καθόλου τῶν καθ’ ἕκαστα· τῷ δὲ καθόλου καὶ τῷ γένει καὶ αἱ ἰδέαι συνάπτουσιν (κατὰ τὸν αὐτὸν γὰρ λόγον οὐσίαι δοκοῦσιν εἶναι). ἐπεὶ δὲ τὸ τί ἦν εἶναι οὐσία, τούτου δὲ λόγος ὁ ὁρισμός, διὰ τοῦτο περὶ ὁρισμοῦ καὶ περὶ τοῦ καθ’ αὐτὸ διώρισται· ἐπεὶ δὲ ὁ ὁρισμὸς λόγος, ὁ δὲ λόγος μέρη ἔχει, ἀναγκαῖον καὶ περὶ μέρους ἦν ἰδεῖν, ποῖα τῆς οὐσίας μέρη καὶ ποῖα οὔ, καὶ εἰ ταῦτα καὶ τοῦ ὁρισμοῦ.	But it follows from our arguments that there are other substances: the essence and the underlying subject. Further, in another way, the genus seems more substance than the species, and the universal than the particulars. And with the universal and the genus the Forms are also connected, for they are thought to be substances by the same argument. Since the essence is substance, and its account is the definition, we have for this reason drawn distinctions about definition and about what is in its own right. And since the definition is an account, and an account has parts, it was necessary to consider parts as well—which are parts of the substance and which are not, and whether these are also parts of the definition.
	ἔτι τοίνυν οὔτε τὸ καθόλου οὐσία οὔτε τὸ γένος· περὶ δὲ τῶν ἰδεῶν καὶ τῶν μαθηματικῶν ὕστερον σκεπτέον· παρὰ γὰρ τὰς αἰσθητὰς οὐσίας ταύτας λέγουσί τινες εἶναι.—νῦν δὲ περὶ τῶν ὁμολογουμένων οὐσιῶν ἐπέλθωμεν. αὗταί δ’ εἰσὶν αἱ αἰσθηταί· αἱ δ’ αἰσθηταὶ οὐσίαι πᾶσαι ὕλην ἔχουσιν. ἔστι δ’ οὐσία τὸ ὑποκείμενον, ἄλλως μὲν ἡ ὕλη (ὕλην δὲ λέγω ἣ μὴ τόδε τι οὖσα ἐνεργείᾳ δυνάμει ἐστὶ τόδε τι), ἄλλως δ’ ὁ λόγος καὶ ἡ μορφή, ὃ τόδε τι ὂν τῷ λόγῳ χωριστόν ἐστιν· τρίτον δὲ τὸ ἐκ τούτων, οὗ γένεσις	Further, neither the universal nor the genus is substance. The Forms and the objects of mathematics must be examined later, for some people say that these are substances beyond the perceptible ones.—Now let us go through the agreed substances. These are the perceptible ones, and perceptible substances all have matter. The underlying subject is substance: in one way the matter (by matter I mean what, not being a “this” in actuality, is potentially a “this”); in another way the account

GREEK	ENGLISH
μόνου καὶ φθορά ἐστι, καὶ χωριστὸν ἁπλῶς· τῶν γὰρ κατὰ τὸν λόγον οὐσιῶν αἱ μὲν αἱ δ' οὔ.	and shape, which, being a "this," is separable in account; and third, what is composed of these, of which alone there is coming-to-be and perishing, and which is separable without qualification. For of the substances according to the account some are separable and some are not.
ὅτι δ' ἐστὶν οὐσία καὶ ἡ ὕλη, δῆλον· ἐν πάσαις γὰρ ταῖς ἀντικειμέναις μεταβολαῖς ἐστί τι τὸ ὑποκείμενον ταῖς μεταβολαῖς, οἷον κατὰ τόπον τὸ νῦν μὲν ἐνταῦθα πάλιν δ' ἄλλοθι, καὶ κατ' αὔξησιν ὃ νῦν μὲν τηλικόνδε πάλιν δ' ἔλαττον ἢ μεῖζον, καὶ κατ' ἀλλοίωσιν ὃ νῦν μὲν ὑγιὲς πάλιν δὲ κάμνον· [1042b] ὁμοίως δὲ καὶ κατ' οὐσίαν ὃ νῦν μὲν ἐν γενέσει πάλιν δ' ἐν φθορᾷ, καὶ νῦν μὲν ὑποκείμενον ὡς τόδε τι πάλιν δ' ὑποκείμενον ὡς κατὰ στέρησιν. καὶ ἀκολουθοῦσι δὴ ταύτῃ αἱ ἄλλαι μεταβολαί, τῶν δ' ἄλλων ἢ μιᾷ ἢ δυοῖν αὕτη οὐκ ἀκολουθεῖ· οὐ γὰρ ἀνάγκη, εἴ τι ὕλην ἔχει τοπικήν, τοῦτο καὶ γεννητὴν καὶ φθαρτὴν ἔχειν. τίς μὲν οὖν διαφορὰ τοῦ ἁπλῶς γίγνεσθαι καὶ μὴ ἁπλῶς, ἐν τοῖς φυσικοῖς εἴρηται.	That matter too is substance is clear. For in all changes between opposites there is something that underlies the changes. In change of place, for instance, there is what is now here and later elsewhere; in growth, what is now of this size and later smaller or larger; in alteration, what is now healthy and later sick. [1042b] Likewise in change of substance, there is what is now in coming-to-be and later in perishing, now underlying as a "this" and later underlying as characterized by privation. The other changes follow this one, but this one does not follow either one or two of the others; for if something has matter for change of place, it does not necessarily also have matter for coming-to-be and perishing. What the difference is between coming to be without qualification and coming to be in a qualified way has been stated in our works on nature.[1]

DIFFERENTIAE AS ACTUALITY

Things are distinguished by position, time, blending, and other differences, which play the role of form.

GREEK	ENGLISH
1042b ἐπεὶ δ' ἡ μὲν ὡς ὑποκειμένη καὶ ὡς ὕλη οὐσία ὁμολογεῖται, αὕτη δ' ἐστὶν ἡ δυνάμει, λοιπὸν τὴν ὡς ἐνέργειαν οὐσίαν τῶν αἰσθητῶν εἰπεῖν τίς ἐστιν. Δημόκριτος μὲν οὖν τρεῖς διαφορὰς ἔοικεν οἰομένῳ εἶναι (τὸ μὲν γὰρ ὑποκείμενον σῶμα, τὴν ὕλην, ἓν καὶ ταὐτόν, διαφέρειν δὲ ἢ ῥυσμῷ, ὅ ἐστι σχῆμα, ἢ τροπῇ, ὅ ἐστι θέσις, ἢ διαθιγῇ, ὅ ἐστι τάξις)· φαίνονται δὲ πολλαὶ διαφοραὶ οὖσαι, οἷον τὰ μὲν συνθέσει λέγεται τῆς ὕλης, ὥσπερ ὅσα κράσει καθάπερ μελίκρατον, τὰ δὲ δεσμῷ οἷον φάκελος, τὰ δὲ κόλλῃ οἷον βιβλίον, τὰ δὲ γόμφῳ οἷον κιβώτιον, τὰ δὲ πλείοσι τούτων, τὰ δὲ θέσει οἷον οὐδὸς καὶ ὑπέρθυρον (ταῦτα γὰρ τῷ κεῖσθαί πως διαφέρει), τὰ δὲ χρόνῳ οἷον δεῖπνον καὶ ἄριστον, τὰ δὲ τόπῳ οἷον τὰ πνεύματα· τὰ δὲ τοῖς τῶν αἰσθητῶν πάθεσιν οἷον σκληρότητι καὶ μαλακότητι, καὶ πυκνότητι καὶ ἀραιότητι, καὶ ξηρότητι καὶ ὑγρότητι, καὶ τὰ μὲν ἐνίοις τούτων τὰ δὲ πᾶσι τούτοις, καὶ ὅλως τὰ μὲν ὑπεροχῇ τὰ δὲ ἐλλείψει.	Since the substance that is the underlying subject and the matter is agreed on, and this is the substance that exists potentially, it remains to say what the substance of perceptible things is as actuality. Democritus seems to think there are three differences: the underlying body, the matter, is one and the same, but it differs either in rhythm, which is shape, or in turning, which is position, or in touching, which is order. But there evidently are many differences. For instance, some things are spoken of by the composition of their matter, as are those formed by blending, like honey-water; others by binding, like a bundle; others by glue, like a book; others by nails, like a box; others by more than one of these. Others are spoken of by position, like a threshold and a lintel (for these differ by lying in a certain way); others by time, like dinner and breakfast; others by place, like the

1 The reference is to Aristotle's *Physics* and *On Coming-to-Be and Passing-Away*.

GREEK

ENGLISH

winds. Others are spoken of by the affections of perceptible things, such as hardness and softness, density and rarity, dryness and wetness—some by some of these, others by all of them—and in general some by excess, others by deficiency.[2]

ὥστε δῆλον ὅτι καὶ τὸ ἔστι τοσαυταχῶς λέγεται· οὐδὸς γὰρ ἔστιν ὅτι οὕτως κεῖται, καὶ τὸ εἶναι τὸ οὕτως αὐτὸ κεῖσθαι σημαίνει, καὶ τὸ κρύσταλλον εἶναι τὸ οὕτω πεπυκνῶσθαι. ἐνίων δὲ τὸ εἶναι καὶ πᾶσι τούτοις ὁρισθήσεται, τῷ τὰ μὲν μεμῖχθαι, τὰ δὲ κεκρᾶσθαι, τὰ δὲ δεδέσθαι, τὰ δὲ πεπυκνῶσθαι, τὰ δὲ ταῖς ἄλλαις διαφοραῖς κεχρῆσθαι, ὥσπερ χεὶρ ἢ πούς. ληπτέα οὖν τὰ γένη τῶν διαφορῶν (αὗται γὰρ ἀρχαὶ ἔσονται τοῦ εἶναι), οἷον τὰ τῷ μᾶλλον καὶ ἧττον ἢ πυκνῷ καὶ μανῷ καὶ τοῖς ἄλλοις τοῖς τοιούτοις· πάντα γὰρ ταῦτα ὑπεροχὴ καὶ ἔλλειψίς ἐστιν. εἰ δέ τι σχήματι ἢ λειότητι καὶ τραχύτητι, πάντα εὐθεῖ καὶ καμπύλῳ. τοῖς δὲ τὸ εἶναι τὸ μεμῖχθαι ἔσται, ἀντικειμένως δὲ τὸ μὴ εἶναι.

So it is clear that "is" is also said in just as many ways. A threshold is, because it lies in this way, and its being signifies its lying in this way; and being ice is being solidified in this way. The being of some things will be defined by all of these: by some parts being mixed, some blended, some bound, some solidified, and some having the other differences, as with a hand or a foot. We must grasp, then, the kinds of differences, since these will be the principles of being—for instance, what differs by more and less, or by dense and rare and other such qualities; for all these are excess and deficiency. And if something differs by shape, or by smoothness and roughness, all these are cases of straight and curved. For other things, being will be their being mixed, and not being will be the opposite.

1043a φανερὸν δὴ ἐκ τούτων ὅτι εἴπερ ἡ οὐσία αἰτία τοῦ εἶναι ἕκαστον, ὅτι ἐν τούτοις ζητητέον τί τὸ αἴτιον τοῦ εἶναι τούτων ἕκαστον. οὐσία μὲν οὖν οὐδὲν τούτων οὐδὲ συνδυαζόμενον, ὅμως δὲ τὸ ἀνάλογον ἐν ἑκάστῳ· καὶ ὡς ἐν ταῖς οὐσίαις τὸ τῆς ὕλης κατηγορούμενον αὐτὴ ἡ ἐνέργεια, καὶ ἐν τοῖς ἄλλοις ὁρισμοῖς μάλιστα. οἷον εἰ οὐδὸν δέοι ὁρίσασθαι, ξύλον ἢ λίθον ὠδὶ κείμενον ἐροῦμεν, καὶ οἰκίαν πλίνθους καὶ ξύλα ὠδὶ κείμενα (ἢ ἔτι καὶ τὸ οὗ ἕνεκα ἐπ' ἐνίων ἔστιν), εἰ δὲ κρύσταλλον, ὕδωρ πεπηγὸς ἢ πεπυκνωμένον ὠδί· συμφωνία δὲ ὀξέος καὶ βαρέος μῖξις τοιαδί· τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν ἄλλων.

It is clear from these considerations, then, that if substance is the cause of each thing's being, we must look among these differentiae for what causes each of these things to be. Now none of them is substance, not even when coupled with matter; but it is what is analogous to substance in each case. And just as among substances what is predicated of the matter is the actuality itself, so too, most of all, in the other definitions. If we had to define a threshold, for instance, we would say "wood or stone lying in such-and-such a position"; a house, "bricks and timbers lying in such-and-such a position" (or in some cases we would also add that for the sake of which); ice, "water frozen or solidified in such-and-such a way"; and harmony is "such-and-such a blend of high and low." And the same holds in the other cases.

φανερὸν δὴ ἐκ τούτων ὅτι ἡ ἐνέργεια ἄλλη ἄλλης ὕλης καὶ ὁ λόγος· τῶν μὲν γὰρ ἡ σύνθεσις τῶν δ' ἡ μῖξις τῶν δὲ ἄλλο τι τῶν εἰρημένων. διὸ τῶν ὁριζομένων οἱ μὲν λέγοντες τί ἐστιν οἰκία, ὅτι λίθοι πλίνθοι ξύλα, τὴν δυνάμει οἰκίαν λέγουσιν, ὕλη γὰρ ταῦτα· οἱ δὲ ἀγγεῖον σκεπαστικὸν χρημάτων καὶ σωμάτων ἤ τι ἄλλο τοιοῦτον προτιθέντες, τὴν ἐνέργειαν λέγουσιν· οἱ δ' ἄμφω ταῦτα συντιθέντες τὴν τρίτην καὶ τὴν ἐκ τούτων οὐσίαν (ἔοικε

It is clear from this, then, that the actuality is different for different matter, and so is the account: in some cases it is composition, in others mixture, in others something else of those we have mentioned. That is why, among people who give definitions, those who say what a house is by saying "stones, bricks, timbers" are stating the potential house, since these are matter; those who propose

2 "Rhythm," "turning," and "touching" are Democritus' own terms.

GREEK	ENGLISH
γὰρ ὁ μὲν διὰ τῶν διαφορῶν λόγος τοῦ εἴδους καὶ τῆς ἐνεργείας εἶναι, ὁ δ' ἐκ τῶν ἐνυπαρχόντων τῆς ὕλης μᾶλλον)· ὁμοίως δὲ καὶ οἵους Ἀρχύτας ἀπεδέχετο ὅρους· τοῦ συνάμφω γάρ εἰσιν. οἷον τί ἐστι νηνεμία;	"a receptacle that shelters goods and bodies," or something else of that sort, are stating the actuality; and those who put both together are stating the third kind of substance, the one composed of these. (For the account that goes through the differentiae seems to be an account of the form and the actuality, while the one drawn from the constituents seems to be rather of the matter.) The same is true of the sort of definitions Archytas used to accept, since they are of the combination of both. For instance, what is windless weather?[3]
ἠρεμία ἐν πλήθει ἀέρος· ὕλη μὲν γὰρ ὁ ἀήρ, ἐνέργεια δὲ καὶ οὐσία ἡ ἠρεμία. τί ἐστι γαλήνη; ὁμαλότης θαλάττης· τὸ μὲν ὑποκείμενον ὡς ὕλη ἡ θάλαττα, ἡ δὲ ἐνέργεια καὶ ἡ μορφὴ ἡ ὁμαλότης. φανερὸν δὴ ἐκ τῶν εἰρημένων τίς ἡ αἰσθητὴ οὐσία ἐστὶ καὶ πῶς· ἡ μὲν γὰρ ὡς ὕλη, ἡ δ' ὡς μορφὴ καὶ ἐνέργεια, ἡ δὲ τρίτη ἡ ἐκ τούτων.	Stillness in a mass of air: the air is the matter, and the stillness is the actuality and the substance. What is a calm? Smoothness of the sea: the sea is the underlying subject as matter, and the smoothness is the actuality and the shape. It is clear from what has been said, then, what perceptible substance is and how it is: one kind is as matter, another as shape and actuality, and the third is the one composed of these.

FORM, COMPOSITE, AND NUMBER

Names may signify form or composite; definitions are like numbers.

GREEK	ENGLISH
δεῖ δὲ μὴ ἀγνοεῖν ὅτι ἐνίοτε λανθάνει πότερον σημαίνει τὸ ὄνομα τὴν σύνθετον οὐσίαν ἢ τὴν ἐνέργειαν καὶ τὴν μορφήν, οἷον ἡ οἰκία πότερον σημεῖον τοῦ κοινοῦ ὅτι σκέπασμα ἐκ πλίνθων καὶ λίθων ὠδὶ κειμένων, ἢ τῆς ἐνεργείας καὶ τοῦ εἴδους ὅτι σκέπασμα, καὶ γραμμὴ πότερον δυὰς ἐν μήκει ἢ [ὅτι] δυάς, καὶ ζῷον πότερον ψυχὴ ἐν σώματι ἢ ψυχή· αὕτη γὰρ οὐσία καὶ ἐνέργεια σώματός τινος. εἴη δ' ἂν καὶ ἐπ' ἀμφοτέροις τὸ ζῷον, οὐχ ὡς ἑνὶ λόγῳ λεγόμενον ἀλλ' ὡς πρὸς ἕν. ἀλλὰ ταῦτα πρὸς μέν τι ἄλλο διαφέρει, πρὸς δὲ τὴν ζήτησιν τῆς οὐσίας τῆς αἰσθητῆς οὐδέν· [1043b] τὸ γὰρ τί ἦν εἶναι τῷ εἴδει καὶ τῇ ἐνεργείᾳ ὑπάρχει.	We must not fail to notice that it is sometimes unclear whether a name signifies the composite substance or the actuality and the shape. Does "house," for instance, signify the combination—"a shelter made of bricks and stones lying in such-and-such a way"—or the actuality and the form, "a shelter"? Is a line "twoness in length" or "twoness"? Is an animal "a soul in a body" or "a soul"? For the soul is the substance and actuality of a certain body. "Animal" might in fact apply to both, not as being said in one account but as being related to one thing. But while these questions make a difference for some other purpose, they make none for the inquiry into perceptible substance; [1043b] for the essence belongs to the form and the actuality.
1043b ψυχὴ μὲν γὰρ καὶ ψυχῇ εἶναι ταὐτόν, ἀνθρώπῳ δὲ καὶ ἄνθρωπος οὐ ταὐτόν, εἰ μὴ καὶ ἡ ψυχὴ ἄνθρωπος λεχθήσεται· οὕτω δὲ τινὶ μὲν τινὶ δ' οὔ.—οὐ φαίνεται δὴ ζητοῦσιν ἡ συλλαβὴ ἐκ τῶν στοιχείων οὖσα καὶ συνθέσεως, οὐδ' ἡ οἰκία πλίνθοι τε καὶ σύνθεσις. καὶ τοῦτο ὀρθῶς· οὐ γάρ ἐστιν ἡ σύνθεσις οὐδ' ἡ μῖξις ἐκ	For soul and being-soul are the same, but being-human and human are not the same, unless the soul too is to be called human; and so in one way they are the same and in another not. —When people inquire, it does not turn out that a syllable consists of its letters plus composition, nor that a

3 Archytas of Tarentum was a Pythagorean philosopher, mathematician and statesman of the fourth century BC, a friend of Plato.

GREEK

τούτων ὧν ἐστὶ σύνθεσις ἢ μῖξις. ὁμοίως δὲ οὐδὲ τῶν ἄλλων οὐθέν, οἷον εἰ ὁ οὐδὸς θέσει, οὐκ ἐκ τοῦ οὐδοῦ ἡ θέσις ἀλλὰ μᾶλλον οὗτος ἐξ ἐκείνης. οὐδὲ δὴ ὁ ἄνθρωπός ἐστι τὸ ζῷον καὶ δίπουν, ἀλλά τι δεῖ εἶναι ὃ παρὰ ταῦτά ἐστιν, εἰ ταῦθ' ὕλη, οὔτε δὲ στοιχεῖον οὔτ' ἐκ στοιχείου, ἀλλ' ἡ οὐσία· ὃ ἐξαιροῦντες τὴν ὕλην λέγουσιν.

ENGLISH

house is bricks plus composition. And rightly so; for the composition or the mixture does not consist of the things of which it is the composition or mixture. Nor does this hold in any other case: if the threshold is what it is by its position, for instance, the position is not made of the threshold; rather the threshold is made of it. Nor, then, is a human being the animal plus the two-footed. If these are matter, there must be something beyond them, something that is neither an element nor made of elements—namely the substance. This is what people leave out when they state only the matter.

εἰ οὖν τοῦτ' αἴτιον τοῦ εἶναι, καὶ οὐσία τοῦτο, αὐτὴν ἂν τὴν οὐσίαν οὐ λέγοιεν. (ἀνάγκη δὴ ταύτην ἢ ἀΐδιον εἶναι ἢ φθαρτὴν ἄνευ τοῦ φθείρεσθαι καὶ γεγονέναι ἄνευ τοῦ γίγνεσθαι. δέδεικται δὲ καὶ δεδήλωται ἐν ἄλλοις ὅτι τὸ εἶδος οὐθεὶς ποιεῖ οὐδὲ γεννᾷ, ἀλλὰ ποιεῖται τόδε, γίγνεται δὲ τὸ ἐκ τούτων. εἰ δ' εἰσὶ τῶν φθαρτῶν αἱ οὐσίαι χωρισταί, οὐδέν πω δῆλον· πλὴν ὅτι γ' ἐνίων οὐκ ἐνδέχεται δῆλον, ὅσα μὴ οἷόν τε παρὰ τὰ τινὰ εἶναι, οἷον οἰκίαν ἢ σκεῦος.

If, then, this is the cause of being, and this is substance, they would not be stating the substance itself. (Now this must either be eternal, or be perishable without being in the process of perishing, and have come to be without being in the process of coming to be. It has been shown and made clear elsewhere that no one makes or generates the form; what is made is this particular thing, and what comes to be is the thing composed of form and matter. Whether the substances of perishable things are separable is not yet at all clear—except that in some cases it clearly cannot be so: in the case of things that cannot exist apart from the particulars, such as a house or a utensil.

ἴσως μὲν οὖν οὐδ' οὐσίαι εἰσὶν οὔτ' αὐτὰ ταῦτα οὔτε τι τῶν ἄλλων ὅσα μὴ φύσει συνέστηκεν· τὴν γὰρ φύσιν μόνην ἄν τις θείη τὴν ἐν τοῖς φθαρτοῖς οὐσίαν.) ὥστε ἡ ἀπορία ἣν οἱ Ἀντισθένειοι καὶ οἱ οὕτως ἀπαίδευτοι ἠπόρουν ἔχει τινὰ καιρόν, ὅτι οὐκ ἔστι τὸ τί ἔστιν ὁρίσασθαι (τὸν γὰρ ὅρον λόγον εἶναι μακρόν), ἀλλὰ ποῖον μέν τί ἐστιν ἐνδέχεται καὶ διδάξαι, ὥσπερ ἄργυρον, τί μέν ἐστιν οὔ, ὅτι δ' οἷον καττίτερος· ὥστ' οὐσίας ἔστι μὲν ἧς ἐνδέχεται εἶναι ὅρον καὶ λόγον, οἷον τῆς συνθέτου, ἐάν τε αἰσθητὴ ἐάν τε νοητὴ ᾖ· ἐξ ὧν δ' αὕτη πρώτων, οὐκέτι, εἴπερ τὶ κατὰ τινὸς σημαίνει ὁ λόγος ὁ ὁριστικὸς καὶ δεῖ τὸ μὲν ὥσπερ ὕλην εἶναι τὸ δὲ ὡς μορφήν.—φανερὸν δὲ καὶ διότι, εἴπερ εἰσί πως ἀριθμοὶ αἱ οὐσίαι, οὕτως εἰσὶ καὶ οὐχ ὥς τινες λέγουσι μονάδων· ὅ τε γὰρ ὁρισμὸς ἀριθμός τις· διαιρετός τε γὰρ καὶ εἰς ἀδιαίρετα (οὐ γὰρ ἄπειροι οἱ λόγοι), καὶ ὁ ἀριθμὸς δὲ τοιοῦτον.

Perhaps, indeed, neither these things themselves nor anything else that is not constituted by nature is a substance at all; for one might count nature alone as the substance in perishable things.) So the puzzle raised by the followers of Antisthenes, and by other such uneducated people, has a certain point: that it is not possible to define what a thing is (for a definition, they say, is a long-winded account), though one can indeed teach what sort of thing it is—with silver, for instance, one cannot say what it is, but one can say that it is like tin. So there is one kind of substance of which there can be a definition and an account, namely the composite kind, whether perceptible or intelligible; but there can be none of the primary things of which it is composed, since a defining account signifies something of something, and one part must be like matter and the other like shape. —It is also clear why, if substances are in some way numbers, they are numbers in this way, and not, as some say, numbers of units. For a definition is a kind of number: it is divisible, and into indivisible parts

GREEK

καὶ ὥσπερ οὐδ’ ἀπ’ ἀριθμοῦ ἀφαιρεθέντος τινὸς ἢ προστεθέντος ἐξ ὧν ὁ ἀριθμός ἐστιν, οὐκέτι ὁ αὐτὸς ἀριθμός ἐστιν ἀλλ’ ἕτερος, κἂν τοὐλάχιστον ἀφαιρεθῇ ἢ προστεθῇ, [1044a] οὕτως οὐδὲ ὁ ὁρισμὸς οὐδὲ τὸ τί ἦν εἶναι οὐκέτι ἔσται ἀφαιρεθέντος τινὸς ἢ προστεθέντος. καὶ τὸν ἀριθμὸν δεῖ εἶναί τι ᾧ εἷς, ὃ νῦν οὐκ ἔχουσι λέγειν τίνι εἷς, εἴπερ ἐστὶν εἷς (ἢ γὰρ οὐκ ἔστιν ἀλλ’ οἷον σωρός, ἢ εἴπερ ἐστί, λεκτέον τί τὸ ποιοῦν ἓν ἐκ πολλῶν)· καὶ ὁ ὁρισμὸς εἷς ἐστίν, ὁμοίως δὲ οὐδὲ τοῦτον ἔχουσι λέγειν. καὶ τοῦτο εἰκότως συμβαίνει· τοῦ αὐτοῦ γὰρ λόγου, καὶ ἡ οὐσία ἓν οὕτως, ἀλλ’ οὐχ ὡς λέγουσί τινες οἷον μονάς τις οὖσα ἢ στιγμή, ἀλλ’ ἐντελέχεια καὶ φύσις τις ἑκάστη.

[1044a] καὶ ὥσπερ οὐδὲ ὁ ἀριθμὸς ἔχει τὸ μᾶλλον καὶ ἧττον, οὐδ’ ἡ κατὰ τὸ εἶδος οὐσία, ἀλλ’ εἴπερ, ἡ μετὰ τῆς ὕλης. περὶ μὲν οὖν γενέσεως καὶ φθορᾶς τῶν λεγομένων οὐσιῶν, πῶς τ’ ἐνδέχεται καὶ πῶς ἀδύνατον, καὶ περὶ τῆς εἰς τὸν ἀριθμὸν ἀναγωγῆς, ἔστω μέχρι τούτων διωρισμένον.

ENGLISH

(for accounts do not go on to infinity), and number too is of this kind.

And just as, when any of the things a number consists of is taken away from it or added to it, it is no longer the same number but a different one, even if the smallest amount is taken away or added, [1044a] so too the definition and the essence will no longer remain the same if anything is taken away or added. A number, too, must be something in virtue of which it is one—which these people cannot now say: what makes it one, if it is one. (For either it is not one but like a heap, or, if it is one, we must say what it is that makes one thing out of many.) And the definition is one, but they are equally unable to say what makes it so. This is a natural result, since the same reasoning applies; and substance is one in this way—not, as some say, by being a kind of unit or point, but because each substance is an actuality and a certain nature.

And just as number does not admit of the more and the less, neither does substance in the sense of form; if any substance does, it is the substance that is with matter. So much, then, for the coming to be and passing away of what are called substances—how it is possible and how it is impossible—and for the reduction of substances to number.

PROPER MATTER AND THE CAUSES

Each thing has its own proximate matter, and we must state all its causes.

GREEK

περὶ δὲ τῆς ὑλικῆς οὐσίας δεῖ μὴ λανθάνειν ὅτι εἰ καὶ ἐκ τοῦ αὐτοῦ πάντα πρώτου ἢ τῶν αὐτῶν ὡς πρώτων καὶ ἡ αὐτὴ ὕλη ὡς ἀρχὴ τοῖς γιγνομένοις, ὅμως ἔστι τις οἰκεία ἑκάστου, οἷον φλέγματος [ἐστι πρώτη ὕλη] τὰ γλυκέα ἢ λιπαρά, χολῆς δὲ τὰ πικρὰ ἢ ἄλλ’ ἄττα· ἴσως δὲ ταῦτα ἐκ τοῦ αὐτοῦ. γίγνονται δὲ πλείους ὕλαι τοῦ αὐτοῦ ὅταν θατέρου ἡ ἑτέρα ᾖ, οἷον φλέγμα ἐκ λιπαροῦ καὶ γλυκέος εἰ τὸ λιπαρὸν ἐκ τοῦ γλυκέος, ἐκ δὲ χολῆς τῷ ἀναλύεσθαι εἰς τὴν πρώτην ὕλην τὴν χολήν. διχῶς γὰρ τόδ’ ἐκ τοῦδε, ἢ ὅτι πρὸ ὁδοῦ ἔσται ἢ ὅτι ἀναλυθέντος εἰς τὴν ἀρχήν. ἐνδέχεται δὲ μιᾶς τῆς ὕλης οὔσης ἕτερα γίγνεσθαι διὰ τὴν κινοῦσαν αἰτίαν, οἷον ἐκ ξύλου καὶ κιβωτὸς καὶ κλίνη.

ENGLISH

As for material substance, we must not overlook that even if everything comes from the same first thing, or from the same things as first, and the same matter serves as the principle for things that come to be, there is nevertheless some matter proper to each. The matter of phlegm, for instance, is the sweet or the fatty, and that of bile the bitter or certain other things—though perhaps these come from the same source. There come to be several matters of the same thing when one matter is the matter of the other: phlegm, for instance, comes from the fatty and from the sweet, if the fatty comes from the sweet; and it comes from bile by bile’s being dissolved into its first matter. For one thing comes from another in two ways: either because it is a step further along the way, or because the other has been dissolved into its prin-

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ciple. And when the matter is one, different things can come to be from it because of the moving cause: from wood, for instance, both a chest and a bed.

ἐνίων δ' ἑτέρα ἡ ὕλη ἐξ ἀνάγκης ἑτέρων ὄντων, οἷον πρίων οὐκ ἂν γένοιτο ἐκ ξύλου, οὐδ' ἐπὶ τῇ κινούσῃ αἰτίᾳ τοῦτο· οὐ γὰρ ποιήσει πρίονα ἐξ ἐρίου ἢ ξύλου. εἰ δ' ἄρα τὸ αὐτὸ ἐνδέχεται ἐξ ἄλλης ὕλης ποιῆσαι, δῆλον ὅτι ἡ τέχνη καὶ ἡ ἀρχὴ ἡ ὡς κινοῦσα ἡ αὐτή· εἰ γὰρ καὶ ἡ ὕλη ἑτέρα καὶ τὸ κινοῦν, καὶ τὸ γεγονός.—ὅταν δή τις ζητῇ τὸ αἴτιον, ἐπεὶ πλεοναχῶς τὰ αἴτια λέγεται, πάσας δεῖ λέγειν τὰς ἐνδεχομένας αἰτίας. οἷον ἀνθρώπου τίς αἰτία ὡς ὕλη; ἆρα τὰ καταμήνια; τί δ' ὡς κινοῦν; ἆρα τὸ σπέρμα; τί δ' ὡς τὸ εἶδος; τὸ τί ἦν εἶναι. τί δ' ὡς οὗ ἕνεκα; τὸ τέλος. 1044b ἴσως δὲ ταῦτα ἄμφω τὸ αὐτό. δεῖ δὲ τὰ ἐγγύτατα αἴτια λέγειν.

But in some cases, if the things are different, the matter must be different: a saw, for instance, could not come to be from wood, and this is not up to the moving cause, since it will not make a saw out of wool or wood. If, however, the same thing can be made from different matter, clearly the craft—the principle as mover—must be the same; for if both the matter and the mover are different, so too is the product. —When someone looks for the cause, then, since causes are spoken of in several ways, we should state all the causes there can be. For instance, what is the cause of a human being as matter? The menstrual fluid, perhaps? What is the cause as mover? The seed, perhaps? What is the cause as form? The essence. What is the cause as that for the sake of which? The end. 1044b But perhaps these last two are the same. And we should state the nearest causes.

1044b τίς ἡ ὕλη; μὴ πῦρ ἢ γῆν ἀλλὰ τὴν ἴδιον. περὶ μὲν οὖν τὰς φυσικὰς οὐσίας καὶ γενητὰς ἀνάγκη οὕτω μετιέναι εἴ τις μέτεισιν ὀρθῶς, εἴπερ ἄρα αἴτιά τε ταῦτα καὶ τοσαῦτα καὶ δεῖ τὰ αἴτια γνωρίζειν· ἐπὶ δὲ τῶν φυσικῶν μὲν ἀϊδίων δὲ οὐσιῶν ἄλλος λόγος. ἴσως γὰρ ἔνια οὐκ ἔχει ὕλην, ἢ οὐ τοιαύτην ἀλλὰ μόνον κατὰ τόπον κινητήν. οὐδ' ὅσα δὴ φύσει μέν, μὴ οὐσίαι δέ, οὐκ ἔστι τούτοις ὕλη, ἀλλὰ τὸ ὑποκείμενον ἡ οὐσία. οἷον τί αἴτιον ἐκλείψεως, τίς ὕλη; οὐ γὰρ ἔστιν, ἀλλ' ἡ σελήνη τὸ πάσχον. τί δ' αἴτιον ὡς κινῆσαν καὶ φθεῖραν τὸ φῶς; ἡ γῆ. τὸ δ' οὗ ἕνεκα ἴσως οὐκ ἔστιν.

What is the matter? Not fire or earth, but the matter peculiar to the thing. In the case of natural substances that come to be, this is how one must proceed if one is to proceed correctly—if these really are the causes, and this is their number, and it is the causes we must come to know. But with natural substances that are eternal the account is different. For perhaps some of them have no matter, or not matter of this sort, but only matter that can move with respect to place. Nor do things that exist by nature but are not substances have matter; what underlies them is the substance. For instance, what is the cause of an eclipse, what is its matter? There is none; rather, the moon is what undergoes it. What is the cause as what moved and destroyed the light? The earth. That for the sake of which perhaps does not exist.

τὸ δ' ὡς εἶδος ὁ λόγος, ἀλλὰ ἄδηλος ἐὰν μὴ μετὰ τῆς αἰτίας ᾖ ὁ λόγος. οἷον τί ἔκλειψις; στέρησις φωτός. ἐὰν δὲ προστεθῇ τὸ ὑπὸ γῆς ἐν μέσῳ γιγνομένης, ὁ σὺν τῷ αἰτίῳ λόγος οὗτος. ὕπνου δ' ἄδηλον τί τὸ πρῶτον πάσχον. ἀλλ' ὅτι τὸ ζῷον; ναί, ἀλλὰ τοῦτο κατὰ τί, καὶ τί πρῶτον; καρδία ἢ ἄλλο τι. εἶτα ὑπὸ τίνος; εἶτα τί τὸ πάθος, τὸ ἐκείνου καὶ μὴ τοῦ ὅλου; ὅτι ἀκινησία τοιαδί; ναί, ἀλλ' αὕτη τῷ τί πάσχειν τὸ πρῶτον;

The cause as form is the account, but it is unclear unless the account includes the cause. For instance, what is an eclipse? Privation of light. But if we add "by the earth's coming in between," this is the account that includes the cause. In the case of sleep, it is unclear what it is that primarily undergoes it. The animal, you say? Yes, but in virtue of what part, and what part primarily? The heart, or something else. Next, what is it produced by? Next, what is the affection—the one that belongs to

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that part and not to the whole? That it is such-and-such an immobility? Yes, but this comes about through the primary part's undergoing what?

MATTER AND CONTRARIES

How matter relates to contraries, and why wine is not potentially vinegar.

GREEK

ENGLISH

ἐπεὶ δ' ἔνια ἄνευ γενέσεως καὶ φθορᾶς ἔστι καὶ οὐκ ἔστιν, οἷον αἱ στιγμαί, εἴπερ εἰσί, καὶ ὅλως τὰ εἴδη (οὐ γὰρ τὸ λευκὸν γίγνεται ἀλλὰ τὸ ξύλον λευκόν, εἰ ἔκ τινος καὶ τὶ πᾶν τὸ γιγνόμενον γίγνεται), οὐ πάντα ἂν τἀναντία γίγνοιτο ἐξ ἀλλήλων, ἀλλ' ἑτέρως λευκὸς ἄνθρωπος ἐκ μέλανος ἀνθρώπου καὶ λευκὸν ἐκ μέλανος· οὐδὲ παντὸς ὕλη ἔστιν ἀλλ' ὅσων γένεσις ἔστι καὶ μεταβολὴ εἰς ἄλληλα· ὅσα δ' ἄνευ τοῦ μεταβάλλειν ἔστιν ἢ μή, οὐκ ἔστι τούτων ὕλη.—ἔχει δ' ἀπορίαν πῶς πρὸς τἀναντία ἡ ὕλη ἡ ἑκάστου ἔχει. οἷον εἰ τὸ σῶμα δυνάμει ὑγιεινόν, ἐναντίον δὲ νόσος ὑγιείᾳ, ἆρα ἄμφω δυνάμει; καὶ τὸ ὕδωρ δυνάμει οἶνος καὶ ὄξος;

Some things are and are not without coming to be and passing away—points, for instance, if they exist, and forms in general (for it is not the white that comes to be but the wood that comes to be white, if everything that comes to be comes from something and becomes something). Since this is so, not all contraries could come to be from one another: a pale person comes from a dark person in a different way from that in which white comes from black. Nor does everything have matter, but only those things that come to be and change into one another; things that are or are not without changing have no matter. —There is a puzzle about how each thing's matter is related to the contraries. For instance, if the body is potentially healthy, and disease is contrary to health, is it potentially both? And is water potentially wine and vinegar?

ἢ τοῦ μὲν καθ' ἕξιν καὶ κατὰ τὸ εἶδος ὕλη, τοῦ δὲ κατὰ στέρησιν καὶ φθορὰν τὴν παρὰ φύσιν; ἀπορία δέ τις ἔστι καὶ διὰ τί ὁ οἶνος οὐχ ὕλη τοῦ ὄξους οὐδὲ δυνάμει ὄξος (καίτοι γίγνεται ἐξ αὐτοῦ ὄξος) καὶ ὁ ζῶν δυνάμει νεκρός. ἢ οὔ, ἀλλὰ κατὰ συμβεβηκὸς αἱ φθοραί, [1045a] ἡ δὲ τοῦ ζῴου ὕλη αὐτὴ κατὰ φθορὰν νεκροῦ δύναμις καὶ ὕλη, καὶ τὸ ὕδωρ ὄξους· γίγνεται γὰρ ἐκ τούτων ὥσπερ ἐξ ἡμέρας νύξ. καὶ ὅσα δὴ οὕτω μεταβάλλει εἰς ἄλληλα, εἰς τὴν ὕλην δεῖ ἐπανελθεῖν, οἷον εἰ ἐκ νεκροῦ ζῷον, εἰς τὴν ὕλην πρῶτον, εἶθ' οὕτω ζῷον· καὶ τὸ ὄξος εἰς ὕδωρ, εἶθ' οὕτως οἶνος.

Or is it the matter of the one in virtue of its positive state and its form, and of the other in virtue of privation and of destruction contrary to its nature? There is also a puzzle why wine is not the matter of vinegar, nor potentially vinegar (though vinegar does come from it), and why the living person is not potentially a corpse. Or is it that they are not, but the destructions are accidental, [1045a] and it is the animal's matter itself that, by being destroyed, is the potentiality and matter of a corpse, and water that of vinegar? For these come from them as night comes from day. And all things that change into one another in this way must go back to their matter: if an animal comes from a corpse, the corpse goes first into its matter, and only then does it become an animal; and vinegar goes into water, and only then becomes wine.

WHAT MAKES A DEFINITION ONE

Matter and form are one thing, the one potentially, the other actually.

GREEK

ENGLISH

1045a περὶ δὲ τῆς ἀπορίας τῆς εἰρημένης περί τε τοὺς ὁρισμοὺς καὶ περὶ τοὺς ἀριθμούς, τί αἴτιον τοῦ ἓν εἶναι; πάντων

GREEK

γὰρ ὅσα πλείω μέρη ἔχει καὶ μὴ ἔστιν οἷον σωρὸς τὸ πᾶν ἀλλ' ἔστι τι τὸ ὅλον παρὰ τὰ μόρια, ἔστι τι αἴτιον, ἐπεὶ καὶ ἐν τοῖς σώμασι τοῖς μὲν ἁφὴ αἰτία τοῦ ἓν εἶναι τοῖς δὲ γλισχρότης ἤ τι πάθος ἕτερον τοιοῦτον. ὁ δ' ὁρισμὸς λόγος ἐστὶν εἷς οὐ συνδέσμῳ καθάπερ ἡ Ἰλιὰς ἀλλὰ τῷ ἑνὸς εἶναι. τί οὖν ἐστὶν ὃ ποιεῖ ἓν τὸν ἄνθρωπον, καὶ διὰ τί ἓν ἀλλ' οὐ πολλά, οἷον τό τε ζῷον καὶ τὸ δίπουν, ἄλλως τε δὴ καὶ εἰ ἔστιν, ὥσπερ φασί τινες, αὐτό τι ζῷον καὶ αὐτὸ δίπουν;

διὰ τί γὰρ οὐκ ἐκεῖνα αὐτὰ ὁ ἄνθρωπός ἐστι, καὶ ἔσονται κατὰ μέθεξιν οἱ ἄνθρωποι οὐκ ἀνθρώπου οὐδ' ἑνὸς ἀλλὰ δυοῖν, ζῴου καὶ δίποδος, καὶ ὅλως δὴ οὐκ ἂν εἴη ὁ ἄνθρωπος ἓν ἀλλὰ πλείω, ζῷον καὶ δίπουν; φανερὸν δὴ ὅτι οὕτω μὲν μετιοῦσιν ὡς εἰώθασιν ὁρίζεσθαι καὶ λέγειν, οὐκ ἐνδέχεται ἀποδοῦναι καὶ λῦσαι τὴν ἀπορίαν· εἰ δ' ἐστίν, ὥσπερ λέγομεν, τὸ μὲν ὕλη τὸ δὲ μορφή, καὶ τὸ μὲν δυνάμει τὸ δὲ ἐνεργείᾳ, οὐκέτι ἀπορία δόξειεν ἂν εἶναι τὸ ζητούμενον. ἔστι γὰρ αὕτη ἡ ἀπορία ἡ αὐτὴ κἂν εἰ ὁ ὅρος εἴη ἱματίου στρογγύλος χαλκός· εἴη γὰρ ἂν σημεῖον τοὔνομα τοῦτο τοῦ λόγου, ὥστε τὸ ζητούμενόν ἐστι τί αἴτιον τοῦ ἓν εἶναι τὸ στρογγύλον καὶ τὸν χαλκόν.

οὐκέτι δὴ ἀπορία φαίνεται, ὅτι τὸ μὲν ὕλη τὸ δὲ μορφή. τί οὖν τούτου αἴτιον, τοῦ τὸ δυνάμει ὂν ἐνεργείᾳ εἶναι, παρὰ τὸ ποιῆσαν, ἐν ὅσοις ἔστι γένεσις; οὐθὲν γάρ ἐστιν αἴτιον ἕτερον τοῦ τὴν δυνάμει σφαῖραν ἐνεργείᾳ εἶναι σφαῖραν, ἀλλὰ τοῦτ' ἦν τὸ τί ἦν εἶναι ἑκατέρῳ. ἔστι δὲ τῆς ὕλης ἡ μὲν νοητὴ ἡ δ' αἰσθητή, καὶ ἀεὶ τοῦ λόγου τὸ μὲν ὕλη τὸ δὲ ἐνέργειά ἐστιν, οἷον ὁ κύκλος σχῆμα ἐπίπεδον.

ὅσα δὲ μὴ ἔχει ὕλην μήτε νοητὴν μήτε αἰσθητήν, εὐθὺς ὅπερ ἕν τί [εἶναί] ἐστιν ἕκαστον, [1045b] ὥσπερ καὶ ὅπερ ὄν τι, τὸ τόδε, τὸ ποιόν, τὸ ποσόν—διὸ καὶ οὐκ ἔνεστιν ἐν τοῖς ὁρισμοῖς οὔτε τὸ ὂν οὔτε τὸ ἕν—, καὶ τὸ τί ἦν εἶναι εὐθὺς ἕν τί ἐστιν ὥσπερ καὶ ὄν τι—διὸ καὶ οὐκ ἔστιν ἕτερόν τι αἴτιον τοῦ ἓν εἶναι οὐθενὶ τούτων οὐδὲ τοῦ ὄν τι εἶναι· εὐθὺς γὰρ ἕκαστόν ἐστιν ὄν τι καὶ ἕν τι, οὐχ ὡς ἐν

ENGLISH

As for the puzzle we mentioned concerning definitions and numbers: what is the cause of their being one? For whatever has several parts and is not a mere heap, but is a whole that is something beyond its parts, has some cause of being one—since even among bodies, contact is the cause of unity for some, and stickiness or some other such affection for others. A definition is an account that is one not by being bound together, like the *Iliad*, but by being of one thing. What, then, is it that makes a human being one, and why is it one and not many—animal and two-footed, for instance—especially if there is, as some say, an animal-itself and a two-footed-itself?

For why are human beings not those very things, so that people would exist by participation not in human-itself, nor in any one thing, but in two, animal and two-footed? And in general a human being would not be one but more than one, animal and two-footed. It is clear, then, that if people proceed in the way they usually define and speak, it is impossible to give an answer and solve the puzzle. But if, as we say, one element is matter and the other shape, and one is potential and the other actual, what we are looking for would no longer seem to be a puzzle. For this puzzle is the same one that would arise if the definition of "cloak" were "round bronze": the name would be a sign of that account, so that what we would be looking for is the cause of the round and the bronze being one.

There no longer appears to be a puzzle, then, because one is matter and the other shape. What, then, is the cause of this—of what is potentially being actually—other than the maker, in things that come to be? For there is no other cause of the potential sphere's being an actual sphere; this was the essence of each. Some matter is intelligible and some perceptible; and in an account one part is always matter and the other actuality—for instance, "the circle is a plane figure."

But things that have no matter, either intelligible or perceptible, are each straightway just what a unity is, [1045b] just as each is straightway just what a being is—a this, a quality, a quantity. (That is why neither being nor one is included in definitions.) And the essence is straightway a kind of unity, just as it is a kind of being. That is why there is no other cause of any of these things' being one, nor of

	GREEK	ENGLISH
	γένει τῷ ὄντι καὶ τῷ ἑνί, οὐδ' ὡς χωριστῶν ὄντων παρὰ τὰ καθ' ἕκαστα.	their being a kind of being; for each is straightway a kind of being and a kind of unity—not as belonging to being or one as to a genus, nor as though these existed separately beyond the particulars.
1045b	διὰ ταύτην δὲ τὴν ἀπορίαν οἱ μὲν μέθεξιν λέγουσι, καὶ αἴτιον τί τῆς μεθέξεως καὶ τί τὸ μετέχειν ἀποροῦσιν· οἱ δὲ συνουσίαν [ψυχῆς], ὥσπερ Λυκόφρων φησὶν εἶναι τὴν ἐπιστήμην τοῦ ἐπίστασθαι καὶ ψυχῆς· οἱ δὲ σύνθεσιν ἢ σύνδεσμον ψυχῆς σώματι τὸ ζῆν. καίτοι ὁ αὐτὸς λόγος ἐπὶ πάντων· καὶ γὰρ τὸ ὑγιαίνειν ἔσται ἢ συνουσία ἢ σύνδεσμος ἢ σύνθεσις ψυχῆς καὶ ὑγιείας, καὶ τὸ τὸν χαλκὸν εἶναι τρίγωνον σύνθεσις χαλκοῦ καὶ τριγώνου, καὶ τὸ λευκὸν εἶναι σύνθεσις ἐπιφανείας καὶ λευκότητος. αἴτιον δ' ὅτι δυνάμεως καὶ ἐντελεχείας ζητοῦσι λόγον ἑνοποιὸν καὶ διαφοράν.	Because of this puzzle some speak of participation, and are at a loss about what causes participation and what participating is. Others speak of "communion," as Lycophron says that knowledge is a communion of knowing and the soul; others say that life is a composition or connection of soul with body. Yet the same argument applies in every case: being healthy, too, will be a communion or connection or composition of soul and health; the bronze's being a triangle will be a composition of bronze and triangle; and something's being white will be a composition of surface and whiteness. The reason is that they are looking for an account that unifies potentiality and actuality, and for a difference between them.[4]
	ἔστι δ', ὥσπερ εἴρηται, ἡ ἐσχάτη ὕλη καὶ ἡ μορφὴ ταὐτὸ καὶ ἕν, δυνάμει, τὸ δὲ ἐνεργείᾳ, ὥστε ὅμοιον τὸ ζητεῖν τοῦ ἑνὸς τί αἴτιον καὶ τοῦ ἓν εἶναι· ἓν γάρ τι ἕκαστον, καὶ τὸ δυνάμει καὶ τὸ ἐνεργείᾳ ἕν πώς ἐστιν, ὥστε αἴτιον οὐθὲν ἄλλο πλὴν εἴ τι ὡς κινῆσαν ἐκ δυνάμεως εἰς ἐνέργειαν. ὅσα δὲ μὴ ἔχει ὕλην, πάντα ἁπλῶς ὅπερ ἕν τι.	But, as has been said, the ultimate matter and the shape are one and the same thing, the one potentially, the other actually; so asking what causes them to be one is like asking what causes anything to be one. For each thing is a kind of unity, and what is potential and what is actual are in a way one. So there is no other cause, unless it is whatever moved the thing from potentiality to actuality. And things that have no matter are all, without qualification, just what a unity is.

4 Lycophron was a sophist of the fourth century BC, perhaps a pupil of Gorgias.

Book Theta (IX)

Potentiality and actuality.

CHAPTER 1

GREEK

περὶ μὲν οὖν τοῦ πρώτως ὄντος καὶ πρὸς ὃ πᾶσαι αἱ ἄλλαι κατηγορίαι τοῦ ὄντος ἀναφέρονται εἴρηται, περὶ τῆς οὐσίας (κατὰ γὰρ τὸν τῆς οὐσίας λόγον λέγεται τἆλλα ὄντα, τό τε ποσὸν καὶ τὸ ποιὸν καὶ τἆλλα τὰ οὕτω λεγόμενα· πάντα γὰρ ἕξει τὸν τῆς οὐσίας λόγον, ὥσπερ εἴπομεν ἐν τοῖς πρώτοις λόγοις)· ἐπεὶ δὲ λέγεται τὸ ὂν τὸ μὲν τὸ τί ἢ ποιὸν ἢ ποσόν, τὸ δὲ κατὰ δύναμιν καὶ ἐντελέχειαν καὶ κατὰ τὸ ἔργον, διορίσωμεν καὶ περὶ δυνάμεως καὶ ἐντελεχείας, καὶ πρῶτον περὶ δυνάμεως ἣ λέγεται μὲν μάλιστα κυρίως, οὐ μὴν χρησιμωτάτη γέ ἐστι πρὸς ὃ βουλόμεθα νῦν· 1046a ἐπὶ πλέον γάρ ἐστιν ἡ δύναμις καὶ ἡ ἐνέργεια τῶν μόνον λεγομένων κατὰ κίνησιν.

ENGLISH

We have now discussed what primarily is, to which all the other categories of being are referred—namely substance. (For it is by reference to the account of substance that the other things are said to be—quantity, quality, and the others spoken of in this way; for they will all involve the account of substance, as we said in our first discussions.) But since being is spoken of in one way as a what, or a quality, or a quantity, and in another way with respect to potentiality and actuality, and with respect to function, let us also make distinctions about potentiality and actuality. First let us take potentiality in the sense in which it is most strictly so called, though this is not the most useful for our present purpose; 1046a for potentiality and actuality extend further than to things spoken of only with respect to motion.

1046a ἀλλ' εἰπόντες περὶ ταύτης, ἐν τοῖς περὶ τῆς ἐνεργείας διορισμοῖς δηλώσομεν καὶ περὶ τῶν ἄλλων. ὅτι μὲν οὖν λέγεται πολλαχῶς ἡ δύναμις καὶ τὸ δύνασθαι, διώρισται ἡμῖν ἐν ἄλλοις· τούτων δ' ὅσαι μὲν ὁμωνύμως λέγονται δυνάμεις ἀφείσθωσαν (ἔνιαι γὰρ ὁμοιότητί τινι λέγονται, καθάπερ ἐν γεωμετρίᾳ καὶ δυνατὰ καὶ ἀδύνατα λέγομεν τῷ εἶναί πως ἢ μὴ εἶναι), ὅσαι δὲ πρὸς τὸ αὐτὸ εἶδος, πᾶσαι ἀρχαί τινές εἰσι, καὶ πρὸς πρώτην μίαν λέγονται, ἥ ἐστιν ἀρχὴ μεταβολῆς ἐν ἄλλῳ ἢ ᾗ ἄλλο. ἡ μὲν γὰρ τοῦ παθεῖν ἐστὶ δύναμις, ἡ ἐν αὐτῷ τῷ πάσχοντι ἀρχὴ μεταβολῆς παθητικῆς ὑπ' ἄλλου ἢ ᾗ ἄλλο· ἡ δ' ἕξις ἀπαθείας τῆς ἐπὶ τὸ χεῖρον καὶ φθορᾶς τῆς ὑπ' ἄλλου ἢ ᾗ ἄλλο ὑπ' ἀρχῆς μεταβλητικῆς.

But when we have spoken about this sense, we shall make the others clear in our distinctions concerning actuality. That "capacity" and "to be capable" are said in many ways we have set out elsewhere. Of these, let us set aside those that are called capacities homonymously (for some are so called by a certain likeness, as in geometry we call things possible and impossible by their being or not being in some way). But those that are related to the same form are all principles of a sort, and are so called by reference to one primary kind, which is a principle of change in another thing or in the thing itself qua other. One kind is the capacity for being acted on: the principle, in the very thing acted on, of its being changed passively by another thing or by itself qua other. Another is the state of being unaffected by change for the worse and by destruction at the hands of another thing, or of itself qua other, through a principle of change.

ἐν γὰρ τούτοις ἔνεστι πᾶσι τοῖς ὅροις ὁ τῆς πρώτης δυνάμεως λόγος. πάλιν δ' αὗται δυνάμεις λέγονται ἢ τοῦ

For the account of the primary capacity is contained in all these definitions. Again, these capa-

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μόνον ποιῆσαι ἢ [τοῦ] παθεῖν ἢ τοῦ καλῶς, ὥστε καὶ ἐν τοῖς τούτων λόγοις ἐνυπάρχουσί πως οἱ τῶν προτέρων δυνάμεων λόγοι.—φανερὸν οὖν ὅτι ἔστι μὲν ὡς μία δύναμις τοῦ ποιεῖν καὶ πάσχειν (δυνατὸν γάρ ἐστι καὶ τῷ ἔχειν αὐτὸ δύναμιν τοῦ παθεῖν καὶ τῷ ἄλλο ὑπ' αὐτοῦ), ἔστι δὲ ὡς ἄλλη.	cities are called capacities either of merely acting or being acted on, or of doing so well; so that in their accounts too the accounts of the prior capacities are in a way contained.—It is clear, then, that in one sense the capacity for acting and for being acted on is one (for a thing is capable both by itself having the capacity to be acted on and by something else's having the capacity to be acted on by it), but in another sense it is different.
ἡ μὲν γὰρ ἐν τῷ πάσχοντι (διὰ γὰρ τὸ ἔχειν τινὰ ἀρχήν, καὶ εἶναι καὶ τὴν ὕλην ἀρχήν τινα, πάσχει τὸ πάσχον, καὶ ἄλλο ὑπ' ἄλλου· τὸ λιπαρὸν μὲν γὰρ καυστὸν τὸ δ' ὑπεῖκον ὠδὶ θλαστόν, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων), ἡ δ' ἐν τῷ ποιοῦντι, οἷον τὸ θερμὸν καὶ ἡ οἰκοδομική, ἡ μὲν ἐν τῷ θερμαντικῷ ἡ δ' ἐν τῷ οἰκοδομικῷ· διὸ ᾗ συμπέφυκεν, οὐθὲν πάσχει αὐτὸ ὑφ' ἑαυτοῦ· ἓν γὰρ καὶ οὐκ ἄλλο. καὶ ἡ ἀδυναμία καὶ τὸ ἀδύνατον ἡ τῇ τοιαύτῃ δυνάμει ἐναντία στέρησίς ἐστιν, ὥστε τοῦ αὐτοῦ καὶ κατὰ τὸ αὐτὸ πᾶσα δύναμις ἀδυναμίᾳ.	For one is in the thing acted on: it is because it has a certain principle—and the matter too is a kind of principle—that what is acted on is acted on, and one thing by one agent, another by another. What is oily can be burned, for instance, and what yields in a certain way can be crushed, and similarly in other cases. The other is in the agent, as heat and the craft of building are, the one in what can heat, the other in what can build. That is why nothing, insofar as it is a natural unity, is acted on by itself; for it is one and not other. And incapacity and the incapable are the privation contrary to this sort of capacity; so every capacity is of the same thing, and in the same respect, as an incapacity.
ἡ δὲ στέρησις λέγεται πολλαχῶς· καὶ γὰρ τὸ μὴ ἔχον καὶ τὸ πεφυκὸς ἂν μὴ ἔχῃ, ἢ ὅλως ἢ ὅτε πέφυκεν, καὶ ἢ ὠδί, οἷον παντελῶς, ἢ κἂν ὁπωσοῦν. ἐπ' ἐνίων δέ, ἂν πεφυκότα ἔχειν μὴ ἔχῃ βίᾳ, ἐστερῆσθαι ταῦτα λέγομεν.	Privation is spoken of in many ways. We use the word of what does not have something; of what would naturally have it but does not, either at all or at the time it would naturally have it; and either in some particular way, for instance completely, or in any way whatever. And in some cases, if things that would naturally have something do not have it because of force, we say they have been deprived of it.

RATIONAL AND NONRATIONAL CAPACITIES

Capacities that involve reason can produce contrary effects; nonrational ones produce only one.

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ἐπεὶ δ' αἱ μὲν ἐν τοῖς ἀψύχοις ἐνυπάρχουσιν ἀρχαὶ τοιαῦται, αἱ δ' ἐν τοῖς ἐμψύχοις καὶ ἐν ψυχῇ καὶ τῆς ψυχῆς ἐν τῷ λόγον ἔχοντι, [1046b] δῆλον ὅτι καὶ τῶν δυνάμεων αἱ μὲν ἔσονται ἄλογοι αἱ δὲ μετὰ λόγου· διὸ πᾶσαι αἱ τέχναι καὶ αἱ ποιητικαὶ ἐπιστῆμαι δυνάμεις εἰσίν· ἀρχαὶ γὰρ μεταβλητικαί εἰσιν ἐν ἄλλῳ ἢ ᾗ ἄλλο. καὶ αἱ μὲν μετὰ λόγου πᾶσαι τῶν ἐναντίων αἱ αὐταί, αἱ δὲ ἄλογοι μία ἑνός, οἷον τὸ θερμὸν τοῦ θερμαίνειν μόνον' ἡ δὲ ἰατρικὴ νόσου καὶ ὑγιείας.	Since some such principles are present in soulless things, and others in things with souls—in the soul, and in the part of the soul that has reason—[1046b] it is clear that some capacities will be nonrational and others will involve reason. That is why all the crafts, that is, the productive kinds of knowledge, are capacities; for they are principles of change in another thing or in the thing itself qua other. And the capacities that involve reason are each capable of contrary effects, whereas each nonrational one is capable of one effect: the hot,

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	for instance, is capable only of heating, whereas medicine is capable of producing disease and health.
1046b αἴτιον δὲ ὅτι λόγος ἐστὶν ἡ ἐπιστήμη, ὁ δὲ λόγος ὁ αὐτὸς δηλοῖ τὸ πρᾶγμα καὶ τὴν στέρησιν, πλὴν οὐχ ὡσαύτως, καὶ ἔστιν ὡς ἀμφοῖν ἔστι δ' ὡς τοῦ ὑπάρχοντος μᾶλλον, ὥστ' ἀνάγκη καὶ τὰς τοιαύτας ἐπιστήμας εἶναι μὲν τῶν ἐναντίων, εἶναι δὲ τοῦ μὲν καθ' αὑτὰς τοῦ δὲ μὴ καθ' αὑτάς· καὶ γὰρ ὁ λόγος τοῦ μὲν καθ' αὑτὸ τοῦ δὲ τρόπον τινὰ κατὰ συμβεβηκός· ἀποφάσει γὰρ καὶ ἀποφορᾷ δηλοῖ τὸ ἐναντίον· ἡ γὰρ στέρησις ἡ πρώτη τὸ ἐναντίον, αὕτη δὲ ἀποφορὰ θατέρου. ἐπεὶ δὲ τὰ ἐναντία οὐκ ἐγγίγνεται ἐν τῷ αὐτῷ, ἡ δ' ἐπιστήμη δύναμις τῷ λόγον ἔχειν, καὶ ἡ ψυχὴ κινήσεως ἔχει ἀρχήν, τὸ μὲν ὑγιεινὸν ὑγίειαν μόνον ποιεῖ καὶ τὸ θερμαντικὸν θερμότητα καὶ τὸ ψυκτικὸν ψυχρότητα, ὁ δ' ἐπιστήμων ἄμφω.	The reason is that scientific knowledge is an account, and the same account makes clear both the thing and its privation, though not in the same way: in a sense it is of both, but in a sense it is more of what is present. So such sciences must be of contraries, but of one in its own right and of the other not in its own right. For the account too is of one in its own right and of the other, in a way, accidentally; for it makes the contrary clear by denial and removal. The primary privation is the contrary, and this is the removal of the other. Now contraries do not occur in the same thing; but scientific knowledge is a capacity by having an account, and the soul has a principle of motion. So while what is healthy produces only health, what can heat only heat, and what can cool only cold, the person with knowledge produces both.
λόγος γάρ ἐστιν ἀμφοῖν μέν, οὐχ ὁμοίως δέ, καὶ ἐν ψυχῇ ἢ ἔχει κινήσεως ἀρχήν· ὥστε ἄμφω ἀπὸ τῆς αὐτῆς ἀρχῆς κινήσει πρὸς ταὐτὸ συνάψασα· διὸ τὰ κατὰ λόγον δυνατὰ τοῖς ἄνευ λόγου δυνατοῖς ποιεῖ τἀναντία· μιᾷ γὰρ ἀρχῇ περιέχεται, τῷ λόγῳ. φανερὸν δὲ καὶ ὅτι τῇ μὲν τοῦ εὖ δυνάμει ἀκολουθεῖ ἡ τοῦ μόνον ποιῆσαι ἢ παθεῖν δύναμις, ταύτῃ δ' ἐκείνη οὐκ ἀεί· ἀνάγκη γὰρ τὸν εὖ ποιοῦντα καὶ ποιεῖν, τὸν δὲ μόνον ποιοῦντα οὐκ ἀνάγκη καὶ εὖ ποιεῖν.	For the account is of both, though not in the same way, and it is in a soul, which has a principle of motion; so the soul will set both in motion from the same principle, linking them to the same account. That is why things capable in accordance with reason act in the opposite way to things capable without reason: their effects are contained under one principle, the account. It is clear, too, that the capacity for merely acting or being acted on follows the capacity for doing so well, but the latter does not always follow the former. For whoever acts well must also act, but whoever merely acts need not act well.

AGAINST THE MEGARIANS

The Megarians say a thing is capable only while acting; Aristotle shows this abolishes change.

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εἰσὶ δέ τινες οἵ φασιν, οἷον οἱ Μεγαρικοί, ὅταν ἐνεργῇ μόνον δύνασθαι, ὅταν δὲ μὴ ἐνεργῇ οὐ δύνασθαι, οἷον τὸν μὴ οἰκοδομοῦντα οὐ δύνασθαι οἰκοδομεῖν, ἀλλὰ τὸν οἰκοδομοῦντα ὅταν οἰκοδομῇ· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων. οἷς τὰ συμβαίνοντα ἄτοπα οὐ χαλεπὸν ἰδεῖν. δῆλον γὰρ ὅτι οὔτ' οἰκοδόμος ἔσται ἐὰν μὴ οἰκοδομῇ (τὸ γὰρ οἰκοδόμῳ εἶναι τὸ δυνατῷ εἶναί ἐστιν οἰκοδομεῖν), ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων τεχνῶν. εἰ οὖν ἀδύνατον τὰς τοιαύτας ἔχειν τέχνας μὴ μαθόντα ποτὲ καὶ λαβόντα, 1047a καὶ μὴ ἔχειν μὴ ἀποβαλόντα ποτέ (ἢ γὰρ λήθῃ ἢ πάθει τινὶ ἢ χρόνῳ· οὐ γὰρ δὴ τοῦ γε πράγματος	There are some—the Megarians, for instance—who say that a thing is capable only when it is acting, and when it is not acting it is not capable: that someone who is not building cannot build, for instance, but only someone who is building, when he is building; and similarly in other cases. It is not hard to see the absurdities that follow for them. For clearly no one will be a builder unless he is building (since being a builder is being capable of building); and similarly with the other crafts. Now it is impossible to have such crafts

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φθαρέντος, ἀεὶ γὰρ ἔστιν), ὅταν παύσηται, οὐχ ἕξει τὴν τέχνην, πάλιν δ' εὐθὺς οἰκοδομήσει πῶς λαβών;

1047a καὶ τὰ ἄψυχα δὴ ὁμοίως· οὔτε γὰρ ψυχρὸν οὔτε θερμὸν οὔτε γλυκὺ οὔτε ὅλως αἰσθητὸν οὐθὲν ἔσται μὴ αἰσθανομένων· ὥστε τὸν Πρωταγόρου λόγον συμβήσεται λέγειν αὐτοῖς. ἀλλὰ μὴν οὐδ' αἴσθησιν ἕξει οὐδὲν ἂν μὴ αἰσθάνηται μηδ' ἐνεργῇ. εἰ οὖν τυφλὸν τὸ μὴ ἔχον ὄψιν, πεφυκὸς δὲ καὶ ὅτε πέφυκε καὶ ἔτι ὄν, οἱ αὐτοὶ τυφλοὶ ἔσονται πολλάκις τῆς ἡμέρας, καὶ κωφοί. ἔτι εἰ ἀδύνατον τὸ ἐστερημένον δυνάμεως, τὸ μὴ γιγνόμενον ἀδύνατον ἔσται γενέσθαι· τὸ δ' ἀδύνατον γενέσθαι ὁ λέγων ἢ εἶναι ἢ ἔσεσθαι ψεύσεται (τὸ γὰρ ἀδύνατον τοῦτο ἐσήμαινεν), ὥστε οὗτοι οἱ λόγοι ἐξαιροῦσι καὶ κίνησιν καὶ γένεσιν. ἀεὶ γὰρ τό τε ἑστηκὸς ἑστήξεται καὶ τὸ καθήμενον καθεδεῖται· οὐ γὰρ ἀναστήσεται ἂν καθέζηται· ἀδύνατον γὰρ ἔσται ἀναστῆναι ὅ γε μὴ δύναται ἀναστῆναι.

εἰ οὖν μὴ ἐνδέχεται ταῦτα λέγειν, φανερὸν ὅτι δύναμις καὶ ἐνέργεια ἕτερόν ἐστιν (ἐκεῖνοι δ' οἱ λόγοι δύναμιν καὶ ἐνέργειαν ταὐτὸ ποιοῦσιν, διὸ καὶ οὐ μικρόν τι ζητοῦσιν ἀναιρεῖν), ὥστε ἐνδέχεται δυνατὸν μέν τι εἶναι μὴ εἶναι δέ, καὶ δυνατὸν μὴ εἶναι εἶναι δέ, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων κατηγοριῶν δυνατὸν βαδίζειν ὃν μὴ βαδίζειν, καὶ μὴ βαδίζειν δυνατὸν ὃν βαδίζειν. ἔστι δὲ δυνατὸν τοῦτο ᾧ ἐὰν ὑπάρξῃ ἡ ἐνέργεια οὗ λέγεται ἔχειν τὴν δύναμιν, οὐθὲν ἔσται ἀδύνατον. λέγω δὲ οἷον, εἰ δυνατὸν καθῆσθαι καὶ ἐνδέχεται καθῆσθαι, τούτῳ ἐὰν ὑπάρξῃ τὸ καθῆσθαι, οὐδὲν ἔσται ἀδύνατον· καὶ εἰ κινηθῆναι ἢ κινῆσαι ἢ στῆναι ἢ στῆσαι ἢ εἶναι ἢ γίγνεσθαι ἢ μὴ εἶναι ἢ μὴ γίγνεσθαι, ὁμοίως.

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without having learned and acquired them at some time, 1047a and impossible not to have them without having lost them at some time (through forgetting, or some affection, or time; not, surely, through the destruction of the object, since that always exists). If so, then when someone stops building he will not have the craft; and when he immediately starts building again, how will he have acquired it?[1]

The same will hold for soulless things: nothing will be cold or hot or sweet, or perceptible at all, unless it is being perceived; so these people will end up stating the doctrine of Protagoras. Indeed, nothing will even have perception unless it is perceiving and actively doing so. If, then, what lacks sight when it would naturally have it, at the time when it would naturally have it, and while it still exists, is blind, the same people will be blind many times a day—and deaf as well. Further, if what is deprived of a capacity is incapable, then what is not happening will be incapable of happening; but whoever says that what is incapable of happening is or will be is speaking falsely (for that is what "incapable" meant). So these arguments do away with both motion and coming to be. What is standing will always stand, and what is sitting will always sit; if it is sitting, it will never get up, since what cannot get up will be incapable of getting up.

If, then, one cannot say these things, it is clear that capacity and actuality are different. (Those arguments make capacity and actuality the same, which is why it is no small thing they are seeking to abolish.) So it is possible for something to be capable of being and yet not be, and capable of not being and yet be; and similarly in the other categories, for something capable of walking not to walk, and for something capable of not walking to walk. A thing is capable if, should the actuality of which it is said to have the capacity belong to it, nothing impossible will follow. I mean, for instance, that if something is capable of sitting and it is possible for it to sit, then if sitting belongs to it nothing impossible will follow; and similarly if it is capable of being moved or of moving something, of standing or of making something stand, of being or of coming to be, of not being or of not coming to be.

1 The Megarians were followers of Euclides of Megara, a companion of Socrates.

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ἐλήλυθε δ' ἡ ἐνέργεια τοὔνομα, ἡ πρὸς τὴν ἐντελέχειαν συντιθεμένη, καὶ ἐπὶ τὰ ἄλλα ἐκ τῶν κινήσεων μάλιστα· δοκεῖ γὰρ ἡ ἐνέργεια μάλιστα ἡ κίνησις εἶναι, διὸ καὶ τοῖς μὴ οὖσιν οὐκ ἀποδιδόασι τὸ κινεῖσθαι, ἄλλας δέ τινας κατηγορίας, οἷον διανοητὰ καὶ ἐπιθυμητὰ εἶναι τὰ μὴ ὄντα, κινούμενα δὲ οὔ, τοῦτο δὲ ὅτι οὐκ ὄντα ἐνεργείᾳ ἔσονται ἐνεργείᾳ. 1047b τῶν γὰρ μὴ ὄντων ἔνια δυνάμει ἐστίν· οὐκ ἔστι δέ, ὅτι οὐκ ἐντελεχείᾳ ἐστίν.	The word "actuality" (*energeia*), which is bound up with *entelecheia*, has been extended to other things chiefly from motions; for actuality seems above all to be motion. That is why people do not attribute being moved to things that are not, though they do attribute certain other predicates to them: they say that things that are not are objects of thought and of desire, but not that they are moved. This is because, while they are not actually, they will be actually. 1047b For of things that are not, some are potentially; but they are not, because they are not actually.

THE POSSIBLE AND THE IMPOSSIBLE

What is possible must be able to happen without absurdity; and what follows from the possible is possible.

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1047b εἰ δέ ἐστι τὸ εἰρημένον τὸ δυνατὸν ἢ ἀκολουθεῖ, φανερὸν ὅτι οὐκ ἐνδέχεται ἀληθὲς εἶναι τὸ εἰπεῖν ὅτι δυνατὸν μὲν τοδί, οὐκ ἔσται δέ, ὥστε τὰ ἀδύνατα εἶναι ταύτῃ διαφεύγειν· λέγω δὲ οἷον εἴ τις φαίη δυνατὸν τὴν διάμετρον μετρηθῆναι οὐ μέντοι μετρηθήσεσθαι—ὁ μὴ λογιζόμενος τὸ ἀδύνατον εἶναι—ὅτι οὐθὲν κωλύει δυνατόν τι ὂν εἶναι ἢ γενέσθαι μὴ εἶναι μηδ' ἔσεσθαι. ἀλλ' ἐκεῖνο ἀνάγκη ἐκ τῶν κειμένων, εἰ καὶ ὑποθοίμεθα εἶναι ἢ γεγονέναι ὃ οὐκ ἔστι μὲν δυνατὸν δέ, ὅτι οὐθὲν ἔσται ἀδύνατον· συμβήσεται δέ γε, τὸ γὰρ μετρεῖσθαι ἀδύνατον. οὐ γὰρ δή ἐστι ταὐτὸ τὸ ψεῦδος καὶ τὸ ἀδύνατον· τὸ γάρ σε ἑστάναι νῦν ψεῦδος μέν, οὐκ ἀδύνατον δέ.	If what we have described is what is capable, or follows from it, it is clear that it cannot be true to say, "This is capable of being, but it will not be," in such a way that the impossible would thereby disappear. I mean, for instance, if someone—someone who does not take account of what is impossible—were to say that the diagonal is capable of being measured but will never be measured, on the grounds that nothing prevents something that is capable of being or coming to be from not being, now or in the future. But from what we have laid down this much necessarily follows: if we were to suppose that what is not, but is capable of being, is or has come to be, nothing impossible would follow. Yet here something impossible will follow, since the diagonal's being measured is impossible. For the false and the impossible are not the same: that you are standing now is false, but not impossible.
ἅμα δὲ δῆλον καὶ ὅτι, εἰ τοῦ Α ὄντος ἀνάγκη τὸ Β εἶναι, καὶ δυνατοῦ ὄντος εἶναι τοῦ Α καὶ τὸ Β ἀνάγκη εἶναι δυνατόν· εἰ γὰρ μὴ ἀνάγκη δυνατὸν εἶναι, οὐθὲν κωλύει μὴ εἶναι δυνατὸν εἶναι. ἔστω δὴ τὸ Α δυνατόν. οὐκοῦν ὅτε τὸ Α δυνατὸν εἴη εἶναι, εἰ τεθείη τὸ Α, οὐθὲν ἀδύνατον εἶναι συνέβαινεν· τὸ δέ γε Β ἀνάγκη εἶναι. ἀλλ' ἦν ἀδύνατον. ἔστω δὴ ἀδύνατον. εἰ δὴ ἀδύνατον [ἀνάγκη] εἶναι τὸ Β, ἀνάγκη καὶ τὸ Α εἶναι. ἀλλ' ἦν ἄρα τὸ πρῶτον ἀδύνατον· καὶ τὸ δεύτερον ἄρα. ἂν ἄρα ᾖ τὸ Α δυνατόν, καὶ τὸ Β ἔσται δυνατόν, εἴπερ οὕτως εἶχον ὥστε τοῦ Α ὄντος ἀνάγκη εἶναι τὸ Β.	At the same time it is also clear that if, when A is, B must be, then when A is possible, B too must be possible. For if B need not be possible, nothing prevents its not being possible. Now let A be possible. Then when A was possible, if A were posited, nothing impossible would follow; but then B must be. Yet B was supposed impossible. So let it be impossible. If B is impossible, A must be impossible too. But then the first was impossible; and so, therefore, was the second. If, then, A is possible, B too will be possible, given that they were so related that when A is, B must be.

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ἐὰν δὴ οὕτως ἐχόντων τῶν A B μὴ ᾖ δυνατὸν τὸ B οὕτως, οὐδὲ τὰ A B ἕξει ὡς ἐτέθη· καὶ εἰ τοῦ A δυνατοῦ ὄντος ἀνάγκη τὸ B δυνατὸν εἶναι, εἰ ἔστι τὸ A ἀνάγκη εἶναι καὶ τὸ B. τὸ γὰρ δυνατὸν εἶναι ἐξ ἀνάγκης τὸ B εἶναι, εἰ τὸ A δυνατόν, τοῦτο σημαίνει, ἐὰν ᾖ τὸ A καὶ ὅτε καὶ ὡς ἦν δυνατὸν εἶναι, κἀκεῖνο τότε καὶ οὕτως εἶναι ἀναγκαῖον.	If, then, with A and B so related, B is not possible in this way, neither will A and B be related as was supposed. And if, when A is possible, B must be possible, then if A is, B too must be. For to say that B must be possible if A is possible means this: if A is, both at the time and in the way in which it was possible for it to be, then B too must be at that time and in that way.

HOW CAPACITIES ARE EXERCISED

Rational capacities need desire or decision to settle which of two contraries they will produce.

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ἁπασῶν δὲ τῶν δυνάμεων οὐσῶν τῶν μὲν συγγενῶν οἷον τῶν αἰσθήσεων, τῶν δὲ ἔθει οἷον τῆς τοῦ αὐλεῖν, τῶν δὲ μαθήσει οἷον τῆς τῶν τεχνῶν, τὰς μὲν ἀνάγκη προενεργήσαντας ἔχειν, ὅσαι ἔθει καὶ λόγῳ, τὰς δὲ μὴ τοιαύτας καὶ τὰς ἐπὶ τοῦ πάσχειν οὐκ ἀνάγκη.	Of all capacities, some are innate, like the senses; some come by habit, like the capacity for playing the pipes; and some by learning, like that for the crafts. Those that come by habit and by reason we can have only if we have first exercised them; those that are not of this kind, and those for being acted on, do not require this.
1048a ἐπεὶ δὲ τὸ δυνατὸν τὶ δυνατὸν καὶ ποτὲ καὶ πὼς καὶ ὅσα ἄλλα ἀνάγκη προσεῖναι ἐν τῷ διορισμῷ, καὶ τὰ μὲν κατὰ λόγον δύναται κινεῖν καὶ αἱ δυνάμεις αὐτῶν μετὰ λόγου, τὰ δὲ ἄλογα καὶ αἱ δυνάμεις ἄλογοι, κἀκείνας μὲν ἀνάγκη ἐν ἐμψύχῳ εἶναι ταύτας δὲ ἐν ἀμφοῖν, τὰς μὲν τοιαύτας δυνάμεις ἀνάγκη, ὅταν ὡς δύνανται τὸ ποιητικὸν καὶ τὸ παθητικὸν πλησιάζωσι, τὸ μὲν ποιεῖν τὸ δὲ πάσχειν, ἐκείνας δ' οὐκ ἀνάγκη· αὗται μὲν γὰρ πᾶσαι μία ἑνὸς ποιητική, ἐκεῖναι δὲ τῶν ἐναντίων, ὥστε ἅμα ποιήσει τὰ ἐναντία· τοῦτο δὲ ἀδύνατον. ἀνάγκη ἄρα ἕτερόν τι εἶναι τὸ κύριον· λέγω δὲ τοῦτο ὄρεξιν ἢ προαίρεσιν.	What is capable is capable of something, at some time, in some way, and with whatever other qualifications must be included in the definition. Some things can initiate motion in accordance with reason, and their capacities involve reason, while others are nonrational and their capacities are nonrational; the former must be in something with a soul, while the latter can be in both. Now with capacities of the latter kind, when the agent and the patient come together in the way appropriate to the capacity, the one must act and the other be acted on; but with the former kind this is not necessary. For the nonrational capacities are each productive of one effect, whereas the rational ones are productive of contraries, so that they would produce contraries at the same time; and that is impossible. There must, then, be something else that is decisive; I mean desire or decision.
ὁποτέρου γὰρ ἂν ὀρέγηται κυρίως, τοῦτο ποιήσει ὅταν ὡς δύναται ὑπάρχῃ καὶ πλησιάζῃ τῷ παθητικῷ· ὥστε τὸ δυνατὸν κατὰ λόγον ἅπαν ἀνάγκη, ὅταν ὀρέγηται οὗ ἔχει τὴν δύναμιν καὶ ὡς ἔχει, τοῦτο ποιεῖν· ἔχει δὲ παρόντος τοῦ παθητικοῦ καὶ ὡδὶ ἔχοντος [ποιεῖν]· εἰ δὲ μή, ποιεῖν οὐ δυνήσεται (τὸ γὰρ μηθενὸς τῶν ἔξω κωλύοντος προσδιορίζεσθαι οὐθὲν ἔτι δεῖ· τὴν γὰρ δύναμιν ἔχει ὡς ἔστι δύναμις τοῦ ποιεῖν, ἔστι δ' οὐ πάντως ἀλλ' ἐχόντων πῶς, ἐν οἷς ἀφορισθήσεται καὶ τὰ ἔξω κωλύοντα· ἀφαιρεῖται γὰρ ταῦτα τῶν ἐν τῷ διορισμῷ προσόντων ἕνια)· διὸ οὐδ' ἐὰν ἅμα βούληται ἢ ἐπιθυμῇ ποιεῖν δύο ἢ	For whichever of the two a thing desires decisively, it will do, when it is in the condition in which it is capable and approaches the patient. So everything capable in accordance with reason, when it desires what it has a capacity for, and in the way it has the capacity, must do it. And it has the capacity when the patient is present and is in a certain condition; otherwise it will not be able to act. (There is no further need to add the qualification "if nothing external prevents it"; for it has the

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τὰ ἐναντία, οὐ ποιήσει· οὐ γὰρ οὕτως ἔχει αὐτῶν τὴν δύναμιν οὐδ' ἔστι τοῦ ἅμα ποιεῖν ἡ δύναμις, ἐπεὶ ὧν ἐστὶν οὕτως ποιήσει.	capacity insofar as it is a capacity for acting, and this is not in all circumstances but under certain conditions, and these will exclude external hindrances, since some of the qualifications in the definition rule them out.) That is why, even if someone wishes or has an appetite to do two things, or contrary things, at the same time, he will not do them; for this is not how he has the capacity for them, nor is there a capacity for doing both at the same time, since he will do the things it is a capacity for in the way it is for them.

WHAT ACTUALITY IS

Actuality is explained by analogy, and activities complete in themselves are distinguished from motions.

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ἐπεὶ δὲ περὶ τῆς κατὰ κίνησιν λεγομένης δυνάμεως εἴρηται, περὶ ἐνεργείας διορίσωμεν τί τέ ἐστιν ἡ ἐνέργεια καὶ ποῖόν τι. καὶ γὰρ τὸ δυνατὸν ἅμα δῆλον ἔσται διαιροῦσιν, ὅτι οὐ μόνον τοῦτο λέγομεν δυνατὸν ὃ πέφυκε κινεῖν ἄλλο ἢ κινεῖσθαι ὑπ' ἄλλου ἢ ἁπλῶς ἢ τρόπον τινά, ἀλλὰ καὶ ἑτέρως, διὸ ζητοῦντες καὶ περὶ τούτων διήλθομεν. ἔστι δὴ ἐνέργεια τὸ ὑπάρχειν τὸ πρᾶγμα μὴ οὕτως ὥσπερ λέγομεν δυνάμει· λέγομεν δὲ δυνάμει οἷον ἐν τῷ ξύλῳ Ἑρμῆν καὶ ἐν τῇ ὅλῃ τὴν ἡμίσειαν, ὅτι ἀφαιρεθείη ἄν, καὶ ἐπιστήμονα καὶ τὸν μὴ θεωροῦντα, ἂν δυνατὸς ᾖ θεωρῆσαι· τὸ δὲ ἐνεργείᾳ.	Since we have discussed the capacity spoken of with respect to motion, let us determine what actuality is and what sort of thing it is. For as we draw our distinctions it will also become clear that we call something capable not only when it is naturally apt to move something else or to be moved by something else, either without qualification or in a certain way, but also in another sense; that is why, in our inquiry, we went through those senses too. Actuality, then, is the thing's being present, but not in the way in which we call it potentially present. We say that something is potentially present as, for instance, a Hermes is in the wood and the half-line in the whole, because it could be separated out; and we call someone a knower even when he is not contemplating, if he is capable of contemplating. The other way of being present is actuality.
δῆλον δ' ἐπὶ τῶν καθ' ἕκαστα τῇ ἐπαγωγῇ ὃ βουλόμεθα λέγειν, καὶ οὐ δεῖ παντὸς ὅρον ζητεῖν ἀλλὰ καὶ τὸ ἀνάλογον συνορᾶν, ὅτι ὡς τὸ οἰκοδομοῦν πρὸς τὸ οἰκοδομικόν, [1048b] καὶ τὸ ἐγρηγορὸς πρὸς τὸ καθεῦδον, καὶ τὸ ὁρῶν πρὸς τὸ μῦον μὲν ὄψιν δὲ ἔχον, καὶ τὸ ἀποκεκριμένον ἐκ τῆς ὕλης πρὸς τὴν ὕλην, καὶ τὸ ἀπειργασμένον πρὸς τὸ ἀνέργαστον. ταύτης δὲ τῆς διαφορᾶς θατέρῳ μορίῳ ἔστω ἡ ἐνέργεια ἀφωρισμένη θατέρῳ δὲ τὸ δυνατόν. λέγεται δὲ ἐνεργείᾳ οὐ πάντα ὁμοίως ἀλλ' ἢ τῷ ἀνάλογον, ὡς τοῦτο ἐν τούτῳ ἢ πρὸς τοῦτο, τόδ' ἐν τῷδε ἢ πρὸς τόδε· τὰ μὲν γὰρ ὡς κίνησις πρὸς δύναμιν τὰ δ' ὡς οὐσία πρός τινα ὕλην.	What we mean is made clear in particular cases by induction, and we should not look for a definition of everything but also see the analogy at a glance: as what is building is to what is capable of building, [1048b] so is what is awake to what is asleep, what is seeing to what has its eyes shut but has sight, what has been shaped out of the matter to the matter, and what has been worked up to what is unworked. Let actuality be marked off by one side of this contrast, and the potential by the other. But things are not all said to be actual in the same way, except by analogy—as this is in this or related to this, so that is in that or related to that. For some are related as motion to capacity, others as substance to some matter.

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1048b	ἄλλως δὲ καὶ τὸ ἄπειρον καὶ τὸ κενόν, καὶ ὅσα τοιαῦτα, λέγεται δυνάμει καὶ ἐνεργείᾳ ⟨ἢ⟩ πολλοῖς τῶν ὄντων, οἷον τῷ ὁρῶντι καὶ βαδίζοντι καὶ ὁρωμένῳ. ταῦτα μὲν γὰρ ἐνδέχεται καὶ ἁπλῶς ἀληθεύεσθαί ποτε (τὸ μὲν γὰρ ὁρώμενον ὅτι ὁρᾶται, τὸ δὲ ὅτι ὁρᾶσθαι δυνατόν)· τὸ δ' ἄπειρον οὐχ οὕτω δυνάμει ἔστιν ὡς ἐνεργείᾳ ἐσόμενον χωριστόν, ἀλλὰ γνώσει. τὸ γὰρ μὴ ὑπολείπειν τὴν διαίρεσιν ἀποδίδωσι τὸ εἶναι δυνάμει ταύτην τὴν ἐνέργειαν, τὸ δὲ χωρίζεσθαι οὔ.	The infinite and the void, and all such things, are said to be potentially and actually in a different sense from many of the things that are, such as what sees, what walks, and what is seen. For these can at some time be truly said to be, without qualification (for what is seen is so called either because it is being seen or because it is capable of being seen). But the infinite is not potential in the sense that it will ever actually be separate; it is so only in knowledge. For the fact that division never gives out ensures that this actuality exists potentially, but not that it exists separately.
	ἐπεὶ δὲ τῶν πράξεων ὧν ἔστι πέρας οὐδεμία τέλος ἀλλὰ τῶν περὶ τὸ τέλος, οἷον τὸ ἰσχναίνειν ἢ ἰσχνασία [αὐτό], αὐτὰ δὲ ὅταν ἰσχναίνῃ οὕτως ἐστὶν ἐν κινήσει, μὴ ὑπάρχοντα ὧν ἕνεκα ἡ κίνησις, οὐκ ἔστι ταῦτα πρᾶξις ἢ οὐ τελεία γε (οὐ γὰρ τέλος)· ἀλλ' ἐκείνη ⟨ᾗ⟩ ἐνυπάρχει τὸ τέλος καὶ [ἡ] πρᾶξις. οἷον ὁρᾷ ἅμα ⟨καὶ ἑώρακε,⟩ καὶ φρονεῖ ⟨καὶ πεφρόνηκε,⟩ καὶ νοεῖ καὶ νενόηκεν, ἀλλ' οὐ μανθάνει καὶ μεμάθηκεν οὐδ' ὑγιάζεται καὶ ὑγίασται· εὖ ζῇ καὶ εὖ ἔζηκεν ἅμα, καὶ εὐδαιμονεῖ καὶ εὐδαιμόνηκεν. εἰ δὲ μή, ἔδει ἄν ποτε παύεσθαι ὥσπερ ὅταν ἰσχναίνῃ, νῦν δ' οὔ, ἀλλὰ ζῇ καὶ ἔζηκεν. τούτων δὴ ⟨δεῖ⟩ τὰς μὲν κινήσεις λέγειν, τὰς δ' ἐνεργείας.	Of actions that have a limit, none is an end; all are among the things directed toward an end. Slimming, for instance, or the process of slimming: the parts of the body themselves, when one is slimming them, are in motion in this way, the things for the sake of which the motion occurs not yet being present. These are not action, or at least not complete action, since they are not an end; but that in which the end is present is an action. For instance, at the same time one sees and has seen, exercises practical wisdom and has exercised it, thinks and has thought; but it is not the case that at the same time one is learning and has learned, or is being cured and has been cured. One is living well and has lived well at the same time, and is happy and has been happy. If this were not so, the process would have to stop at some point, as when one is slimming; but as it is, it does not stop—one lives and has lived. Of these processes, then, we should call the one kind motions and the other activities.
	πᾶσα γὰρ κίνησις ἀτελής, ἰσχνασία μάθησις βάδισις οἰκοδόμησις· αὗται δὴ κινήσεις, καὶ ἀτελεῖς γε. οὐ γὰρ ἅμα βαδίζει καὶ βεβάδικεν, οὐδ' οἰκοδομεῖ καὶ ᾠκοδόμηκεν, οὐδὲ γίγνεται καὶ γέγονεν ἢ κινεῖται καὶ κεκίνηται, ἀλλ' ἕτερον, καὶ κινεῖ καὶ κεκίνηκεν· ἑώρακε δὲ καὶ ὁρᾷ ἅμα τὸ αὐτό, καὶ νοεῖ καὶ νενόηκεν. τὴν μὲν οὖν τοιαύτην ἐνέργειαν λέγω, ἐκείνην δὲ κίνησιν. τὸ μὲν οὖν ἐνεργείᾳ τί τέ ἐστι καὶ ποῖον, ἐκ τούτων καὶ τῶν τοιούτων δῆλον ἡμῖν ἔστω.	For every motion is incomplete—slimming, learning, walking, building. These are motions, and incomplete ones. For one is not at the same time walking and has walked, nor building and has built, nor coming to be and has come to be, nor being moved and has been moved; these are different, as are moving something and having moved it. But the same thing at the same time has seen and is seeing, is thinking and has thought. The latter kind I call an activity, the former a motion. What actuality is, then, and what sort of thing it is, let this and similar discussion make clear to us.

WHEN A THING IS POTENTIALLY SOMETHING

Earth is not yet potentially a human being; seed is, once nothing more must be added.

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	πότε δὲ δυνάμει ἔστιν ἕκαστον καὶ πότε οὔ, διοριστέον· οὐ γὰρ ὁποτεοῦν. [1049a] οἷον ἡ γῆ ἆρ' ἐστὶ δυνάμει ἄνθρωπος; ἢ οὔ, ἀλλὰ μᾶλλον ὅταν ἤδη γένηται σπέρμα, καὶ οὐδὲ τότε ἴσως; ὥσπερ οὖν οὐδ' ὑπὸ ἰατρικῆς ἅπαν ἂν ὑγιασθείη οὐδ' ἀπὸ τύχης, ἀλλ' ἔστι τι ὃ δυνατόν ἐστι, καὶ τοῦτ' ἔστιν ὑγιαῖνον δυνάμει. ὅρος δὲ τοῦ μὲν ἀπὸ διανοίας ἐντελεχείᾳ γιγνομένου ἐκ τοῦ δυνάμει ὄντος, ὅταν βουληθέντος γίγνηται μηθενὸς κωλύοντος τῶν ἐκτός, ἐκεῖ δ' ἐν τῷ ὑγιαζομένῳ, ὅταν μηθὲν κωλύῃ τῶν ἐν αὐτῷ· ὁμοίως δὲ δυνάμει καὶ οἰκία· εἰ μηθὲν κωλύει τῶν ἐν τούτῳ καὶ τῇ ὕλῃ τοῦ γίγνεσθαι οἰκίαν, οὐδ' ἔστιν ὃ δεῖ προσγενέσθαι ἢ ἀπογενέσθαι ἢ μεταβαλεῖν, τοῦτο δυνάμει οἰκία· καὶ ἐπὶ τῶν ἄλλων ὡσαύτως ὅσων ἔξωθεν ἡ ἀρχὴ τῆς γενέσεως.	We must determine when each thing is potentially something and when it is not; for it is not at just any time. [1049a] Is earth, for instance, potentially a human being? Or is it not, but rather when it has already become seed—and perhaps not even then? It is just as not everything can be healed by medicine or by luck; there is something that is capable of it, and this is what is potentially healthy. The mark of what comes to be actual from what is potential through thought is that it comes to be when the agent wishes it, if nothing external prevents it; and in the other case, in what is being healed, when nothing within it prevents it. Similarly a thing is potentially a house if nothing in it or in its matter prevents its becoming a house, and there is nothing that must be added or taken away or changed: this is potentially a house. And the same holds for all other things whose principle of coming to be is external.
1049a	καὶ ὅσων δὴ ἐν αὐτῷ τῷ ἔχοντι, ὅσα μηθενὸς τῶν ἔξωθεν ἐμποδίζοντος ἔσται δι' αὐτοῦ· οἷον τὸ σπέρμα οὔπω (δεῖ γὰρ ἐν ἄλλῳ ⟨πεσεῖν⟩ καὶ μεταβάλλειν), ὅταν δ' ἤδη διὰ τῆς αὑτοῦ ἀρχῆς ᾖ τοιοῦτον, ἤδη τοῦτο δυνάμει· ἐκεῖνο δὲ ἑτέρας ἀρχῆς δεῖται, ὥσπερ ἡ γῆ οὔπω ἀνδριὰς δυνάμει (μεταβαλοῦσα γὰρ ἔσται χαλκός). ἔοικε δὲ ὃ λέγομεν εἶναι οὐ τόδε ἀλλ' ἐκείνινον—οἷον τὸ κιβώτιον οὐ ξύλον ἀλλὰ ξύλινον, οὐδὲ τὸ ξύλον γῆ ἀλλὰ γήϊνον, πάλιν ἡ γῆ εἰ οὕτως μὴ ἄλλο ἀλλὰ ἐκείνινον—ἀεὶ ἐκεῖνο δυνάμει ἁπλῶς τὸ ὕστερόν ἐστιν. οἷον τὸ κιβώτιον οὐ γήϊνον οὐδὲ γῆ ἀλλὰ ξύλινον· τοῦτο γὰρ δυνάμει κιβώτιον καὶ ὕλη κιβωτίου αὕτη, ἁπλῶς μὲν τοῦ ἁπλῶς τουδὶ δὲ τοδὶ τὸ ξύλον.	And with things whose principle is within the thing itself, they are potentially whatever they will be through themselves if nothing external hinders them. The seed, for instance, is not yet potentially a human being (for it must be deposited in another and change); but when through its own principle it is already of that kind, then it is already potentially a human being. In the earlier state it needs another principle, just as earth is not yet potentially a statue, since it must change to become bronze. It seems that what we call a thing is not "that" but "that-en"—a chest, for instance, is not wood but wooden, and wood is not earth but earthen; and earth in turn, if it is like this, is not that other thing but "that-en"—and in each case it is the earlier that is, without qualification, potentially the later. The chest, for instance, is not earthen or earth but wooden; for this is potentially a chest, and this is the matter of a chest: wood in general of chest in general, and this wood of this chest.[2]
	εἰ δέ τί ἐστι πρῶτον ὃ μηκέτι κατ' ἄλλο λέγεται ἐκείνινον, τοῦτο πρώτη ὕλη· οἷον εἰ ἡ γῆ ἀερίνη, ὁ δ' ἀὴρ μὴ πῦρ ἀλλὰ πύρινος, τὸ πῦρ ὕλη πρώτη οὐ τόδε τι οὖσα. τούτῳ	If there is some first thing that is no longer called "that-en" with reference to something else, this is prime matter. If earth, for instance, is airy, and air

2 Aristotle coins *ekeininon*, "that-en," on the model of material adjectives like "wooden" and "earthen."

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	γὰρ διαφέρει τὸ καθ' οὗ καὶ τὸ ὑποκείμενον, τῷ εἶναι τόδε τι ἢ μὴ εἶναι· οἷον τοῖς πάθεσι τὸ ὑποκείμενον ἄνθρωπος καὶ σῶμα καὶ ψυχή, πάθος δὲ τὸ μουσικὸν καὶ λευκόν (λέγεται δὲ τῆς μουσικῆς ἐγγενομένης ἐκεῖνο οὐ μουσικὴ ἀλλὰ μουσικόν, καὶ οὐ λευκότης ὁ ἄνθρωπος ἀλλὰ λευκόν, οὐδὲ βάδισις ἢ κίνησις ἀλλὰ βαδίζον ἢ κινούμενον, ὡς τὸ ἐκείνινον)·—ὅσα μὲν οὖν οὕτω, τὸ ἔσχατον οὐσία· ὅσα δὲ μὴ οὕτως ἀλλ' εἶδός τι καὶ τόδε τι τὸ κατηγορούμενον, τὸ ἔσχατον ὕλη καὶ οὐσία ὑλική.	is not fire but fiery, then fire is prime matter, not being a this. For this is how the subject of predication, the underlying subject, is differentiated: by being a this or not. For instance, the subject of affections is a human being, a body and a soul, while the affection is musical or pale. (When music has come to be in him, the subject is called not "music" but "musical"; the human being is not "paleness" but "pale," nor "a walk" or "a motion" but "walking" or "moving"—just as with "that-en.") In cases of this kind, then, the ultimate subject is substance; but where this is not so, and what is predicated is a form and a this, the ultimate subject is matter and material substance.
	καὶ ὀρθῶς δὴ συμβαίνει τὸ ἐκείνινον λέγεσθαι κατὰ τὴν ὕλην καὶ τὰ πάθη· 1049b ἄμφω γὰρ ἀόριστα. πότε μὲν οὖν λεκτέον δυνάμει καὶ πότε οὔ, εἴρηται.	And it turns out, rightly, that "that-en" is said with reference both to matter and to affections; 1049b for both are indeterminate. We have said, then, when a thing should be called potentially something and when not.

ACTUALITY IS PRIOR TO POTENTIALITY

Actuality is prior in account, in time, and above all in substance; eternal things are wholly actual.

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1049b	ἐπεὶ δὲ τὸ πρότερον διώρισται ποσαχῶς λέγεται, φανερὸν ὅτι πρότερον ἐνέργεια δυνάμεώς ἐστιν. λέγω δὲ δυνάμεως οὐ μόνον τῆς ὡρισμένης ἢ λέγεται ἀρχὴ μεταβλητικὴ ἐν ἄλλῳ ἢ ᾗ ἄλλο, ἀλλ' ὅλως πάσης ἀρχῆς κινητικῆς ἢ στατικῆς. καὶ γὰρ ἡ φύσις ἐν ταὐτῷ [γίγνεται· ἐν ταὐτῷ γὰρ] γένει τῇ δυνάμει· ἀρχὴ γὰρ κινητική, ἀλλ' οὐκ ἐν ἄλλῳ ἀλλ' ἐν αὐτῷ ᾗ αὐτό.—πάσης δὴ τῆς τοιαύτης προτέρα ἐστὶν ἡ ἐνέργεια καὶ λόγῳ καὶ τῇ οὐσίᾳ· χρόνῳ δ' ἔστι μὲν ὥς, ἔστι δὲ ὡς οὔ.	Since we have distinguished the various senses of "prior," it is clear that actuality is prior to potentiality. By potentiality I mean not only the kind we have defined, which is called a principle of change in another thing or in the thing itself qua other, but in general every principle of motion or of rest. For nature too is in the same genus as capacity, since it is a principle of motion—though not in another thing, but in the thing itself qua itself.—To every such capacity, then, actuality is prior both in account and in substance; and in time it is prior in one sense, and in another not.
	τῷ λόγῳ μὲν οὖν ὅτι προτέρα, δῆλον (τῷ γὰρ ἐνδέχεσθαι ἐνεργῆσαι δυνατόν ἐστι τὸ πρώτως δυνατόν, οἷον λέγω οἰκοδομικὸν τὸ δυνάμενον οἰκοδομεῖν, καὶ ὁρατικὸν τὸ ὁρᾶν, καὶ ὁρατὸν τὸ δυνατὸν ὁρᾶσθαι· ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τῶν ἄλλων, ὥστ' ἀνάγκη τὸν λόγον προϋπάρχειν καὶ τὴν γνῶσιν τῆς γνώσεως)· τῷ δὲ χρόνῳ πρότερον ὧδε· τὸ τῷ εἴδει τὸ αὐτὸ ἐνεργοῦν πρότερον, ἀριθμῷ δ' οὔ.	That it is prior in account is clear. (For what is capable in the primary sense is capable because it can become active: I mean, for instance, that "capable of building" means able to build, "capable of seeing" able to see, and "visible" able to be seen. The same account holds in other cases, so that the account and knowledge of the one must precede the knowledge of the other.) It is prior in time in this way: the actual thing that is the same in form as the potential one is prior to it, though not the thing that is the same in number.

GREEK

λέγω δὲ τοῦτο ὅτι τοῦδε μὲν τοῦ ἀνθρώπου τοῦ ἤδη ὄντος κατ' ἐνέργειαν καὶ τοῦ σίτου καὶ τοῦ ὁρῶντος πρότερον τῷ χρόνῳ ἡ ὕλη καὶ τὸ σπέρμα καὶ τὸ ὁρατικόν, ἃ δυνάμει μέν ἐστιν ἄνθρωπος καὶ σῖτος καὶ ὁρῶν, ἐνεργείᾳ δ' οὔπω· ἀλλὰ τούτων πρότερα τῷ χρόνῳ ἕτερα ὄντα ἐνεργείᾳ ἐξ ὧν ταῦτα ἐγένετο· ἀεὶ γὰρ ἐκ τοῦ δυνάμει ὄντος γίγνεται τὸ ἐνεργείᾳ ὂν ὑπὸ ἐνεργείᾳ ὄντος, οἷον ἄνθρωπος ἐξ ἀνθρώπου, μουσικὸς ὑπὸ μουσικοῦ, ἀεὶ κινοῦντός τινος πρώτου· τὸ δὲ κινοῦν ἐνεργείᾳ ἤδη ἔστιν. εἴρηται δὲ ἐν τοῖς περὶ τῆς οὐσίας λόγοις ὅτι πᾶν τὸ γιγνόμενον γίγνεται ἔκ τινος τι καὶ ὑπό τινος, καὶ τοῦτο τῷ εἴδει τὸ αὐτό.

διὸ καὶ δοκεῖ ἀδύνατον εἶναι οἰκοδόμον εἶναι μὴ οἰκοδομήσαντα μηθὲν ἢ κιθαριστὴν μηθὲν κιθαρίσαντα· ὁ γὰρ μανθάνων κιθαρίζειν κιθαρίζων μανθάνει κιθαρίζειν, ὁμοίως δὲ καὶ οἱ ἄλλοι. ὅθεν ὁ σοφιστικὸς ἔλεγχος ἐγίγνετο ὅτι οὐκ ἔχων τις τὴν ἐπιστήμην ποιήσει οὗ ἡ ἐπιστήμη· ὁ γὰρ μανθάνων οὐκ ἔχει. ἀλλὰ διὰ τὸ τοῦ γιγνομένου γεγενῆσθαί τι καὶ τοῦ ὅλως κινουμένου κεκινῆσθαί τι (δῆλον δ' ἐν τοῖς περὶ κινήσεως τοῦτο) [1050a] καὶ τὸν μανθάνοντα ἀνάγκη ἔχειν τι τῆς ἐπιστήμης ἴσως. ἀλλ' οὖν καὶ ταύτῃ γε δῆλον ὅτι ἡ ἐνέργεια καὶ οὕτω προτέρα τῆς δυνάμεως κατὰ γένεσιν καὶ χρόνον.

[1050a] ἀλλὰ μὴν καὶ οὐσίᾳ γε, πρῶτον μὲν ὅτι τὰ τῇ γενέσει ὕστερα τῷ εἴδει καὶ τῇ οὐσίᾳ πρότερα (οἷον ἀνὴρ παιδὸς καὶ ἄνθρωπος σπέρματος· τὸ μὲν γὰρ ἤδη ἔχει τὸ εἶδος τὸ δ' οὔ), καὶ ὅτι ἅπαν ἐπ' ἀρχὴν βαδίζει τὸ γιγνόμενον καὶ τέλος (ἀρχὴ γὰρ τὸ οὗ ἕνεκα, τοῦ τέλους δὲ ἕνεκα ἡ γένεσις), τέλος δ' ἡ ἐνέργεια, καὶ τούτου χάριν ἡ δύναμις λαμβάνεται. οὐ γὰρ ἵνα ὄψιν ἔχωσιν ὁρῶσι τὰ ζῷα ἀλλ' ὅπως ὁρῶσιν ὄψιν ἔχουσιν, ὁμοίως δὲ καὶ οἰκοδομικὴν ἵνα οἰκοδομῶσι καὶ τὴν θεωρητικὴν ἵνα θεωρῶσιν· ἀλλ' οὐ θεωροῦσιν ἵνα θεωρητικὴν ἔχωσιν, εἰ μὴ οἱ μελετῶντες· οὗτοι δὲ οὐχὶ θεωροῦσιν ἀλλ' ἢ ὠδί, †ἢ ὅτι οὐδὲν δέονται θεωρεῖν†.

ENGLISH

I mean this: prior in time to this particular human being, who already exists actually, and to the grain, and to what is seeing, are the matter, the seed, and what is capable of seeing, which are potentially a human being, grain, and seeing, but not yet actually. But prior in time to these are other things, existing actually, from which they came to be. For what is actual always comes to be from what is potential by the agency of something actual—a human being by a human being, a musician by a musician—there always being some first mover; and the mover already exists actually. We said in our discussion of substance that everything that comes to be comes to be from something, becomes something, and does so by the agency of something, and that this agent is the same in form as what comes to be.

That is why it seems impossible to be a builder if one has built nothing, or a lyre-player if one has never played the lyre; for someone who learns to play the lyre learns by playing the lyre, and similarly with other learners. From this arose the sophistical refutation that someone who does not have a science will be doing what the science is of, since the learner does not have it. But since of what is coming to be some part has already come to be, and of what is being moved in general some part has already been moved (this is shown in our discussion of motion), [1050a] the learner too must perhaps have some part of the science. At any rate it is clear in this way too that actuality is prior to potentiality in this sense also, in coming to be and in time.

But it is also prior in substance: first, because things that are posterior in coming to be are prior in form and in substance (a man, for instance, is prior to a boy, and a human being to seed, since the one already has the form and the other does not); and because everything that comes to be proceeds toward a principle and an end (for that for the sake of which is a principle, and coming to be is for the sake of the end). And the actuality is the end, and it is for its sake that the capacity is acquired. For animals do not see in order to have sight; they have sight in order to see. Likewise people have the craft of building in order to build, and the capacity for contemplation in order to contemplate; they do not contemplate in order to have the capacity for contemplation—except those

GREEK

ENGLISH

who are practicing, and they are not contemplating except in a limited sense, or else because they have no need to contemplate.[3]

ἔτι ἡ ὕλη ἔστι δυνάμει ὅτι ἔλθοι ἂν εἰς τὸ εἶδος· ὅταν δέ γε ἐνεργείᾳ ᾖ, τότε ἐν τῷ εἴδει ἐστίν. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων, καὶ ὧν κίνησις τὸ τέλος, διὸ ὥσπερ οἱ διδάσκοντες ἐνεργοῦντα ἐπιδείξαντες οἴονται τὸ τέλος ἀποδεδωκέναι, καὶ ἡ φύσις ὁμοίως. εἰ γὰρ μὴ οὕτω γίγνεται, ὁ Παύσωνος ἔσται Ἑρμῆς· ἄδηλος γὰρ καὶ ἡ ἐπιστήμη εἰ ἔσω ἢ ἔξω, ὥσπερ κἀκεῖνος. τὸ γὰρ ἔργον τέλος, ἡ δὲ ἐνέργεια τὸ ἔργον, διὸ καὶ τοὔνομα ἐνέργεια λέγεται κατὰ τὸ ἔργον καὶ συντείνει πρὸς τὴν ἐντελέχειαν.

Further, matter is potentially because it might come to its form; and when it is actually, then it is in its form. Similarly in other cases too, including those whose end is a motion. That is why, just as teachers think they have achieved their end when they have shown the pupil at work, so too does nature. For if it were not so, we would have Pauson's Hermes again: it would be unclear whether the knowledge is inside or outside, as it is with that figure. For the work is the end, and the actuality is the work; that is why the word "actuality" (*energeia*) is derived from "work" (*ergon*) and points toward *entelecheia*.[4]

ἐπεὶ δ' ἐστὶ τῶν μὲν ἔσχατον ἡ χρῆσις (οἷον ὄψεως ἡ ὅρασις, καὶ οὐθὲν γίγνεται παρὰ ταύτην ἕτερον ἀπὸ τῆς ὄψεως), ἀπ' ἐνίων δὲ γίγνεταί τι (οἷον ἀπὸ τῆς οἰκοδομικῆς οἰκία παρὰ τὴν οἰκοδόμησιν), ὅμως οὐθὲν ἧττον ἔνθα μὲν τέλος, ἔνθα δὲ μᾶλλον τέλος τῆς δυνάμεώς ἐστιν· ἡ γὰρ οἰκοδόμησις ἐν τῷ οἰκοδομουμένῳ, καὶ ἅμα γίγνεται καὶ ἔστι τῇ οἰκίᾳ.

In some cases the ultimate thing is the use (with sight, for instance, it is seeing, and nothing else comes to be from sight besides this), while in others something does come to be (from the craft of building, for instance, a house comes to be besides the act of building). Even so, the actuality is no less the end in the first case, and in the second it is more the end than the capacity is; for the building takes place in what is being built, and comes to be, and is, at the same time as the house.

ὅσων μὲν οὖν ἕτερόν τί ἐστι παρὰ τὴν χρῆσιν τὸ γιγνόμενον, τούτων μὲν ἡ ἐνέργεια ἐν τῷ ποιουμένῳ ἐστίν (οἷον ἥ τε οἰκοδόμησις ἐν τῷ οἰκοδομουμένῳ καὶ ἡ ὕφανσις ἐν τῷ ὑφαινομένῳ, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων, καὶ ὅλως ἡ κίνησις ἐν τῷ κινουμένῳ)· ὅσων δὲ μὴ ἔστιν ἄλλο τι ἔργον παρὰ τὴν ἐνέργειαν, ἐν αὐτοῖς ὑπάρχει ἡ ἐνέργεια (οἷον ἡ ὅρασις ἐν τῷ ὁρῶντι καὶ ἡ θεωρία ἐν τῷ θεωροῦντι καὶ ἡ ζωὴ ἐν τῇ ψυχῇ, διὸ καὶ ἡ εὐδαιμονία· 1050b ζωὴ γὰρ ποιά τίς ἐστιν). ὥστε φανερὸν ὅτι ἡ οὐσία καὶ τὸ εἶδος ἐνέργειά ἐστιν.

Where what comes to be is something other than the use, the actuality is in what is being made (building, for instance, is in what is being built, and weaving in what is being woven, and similarly in other cases; and in general motion is in what is being moved). But where there is no other work besides the actuality, the actuality is present in the agents themselves (seeing, for instance, is in the one seeing, contemplation in the one contemplating, and life in the soul—which is why happiness is too, 1050b since it is a certain kind of life). So it is clear that substance and form are actuality.

1050b κατά τε δὴ τοῦτον τὸν λόγον φανερὸν ὅτι πρότερον τῇ οὐσίᾳ ἐνέργεια δυνάμεως, καὶ ὥσπερ εἴπομεν, τοῦ χρόνου ἀεὶ προλαμβάνει ἐνέργεια ἑτέρα πρὸ ἑτέρας ἕως τῆς τοῦ ἀεὶ κινοῦντος πρώτως.—ἀλλὰ μὴν καὶ κυριωτέρως· τὰ μὲν γὰρ ἀΐδια πρότερα τῇ οὐσίᾳ τῶν φθαρτῶν, ἔστι δ' οὐθὲν δυνάμει ἀΐδιον. λόγος δὲ ὅδε· πᾶσα δύναμις ἅμα τῆς ἀντιφάσεώς ἐστιν· τὸ μὲν γὰρ μὴ δυνατὸν ὑπάρχειν

By this argument, then, it is clear that actuality is prior in substance to potentiality; and, as we said, in time one actuality always precedes another, back to that of the primary eternal mover.—But it is also prior in a stricter sense. For eternal things are prior in substance to perishable things, and nothing eternal is potential. The argument is this.

3 The end of this sentence is corrupt in the manuscripts; the rendering gives the likeliest sense.
4 Pauson was a Greek painter; his Hermes was apparently a trick picture in which one could not tell whether the figure was inside the stone or on its surface.

GREEK

οὐκ ἂν ὑπάρξειεν οὐθενί, τὸ δυνατὸν δὲ πᾶν ἐνδέχεται μὴ ἐνεργεῖν. τὸ ἄρα δυνατὸν εἶναι ἐνδέχεται καὶ εἶναι καὶ μὴ εἶναι· τὸ αὐτὸ ἄρα δυνατὸν καὶ εἶναι καὶ μὴ εἶναι.

τὸ δὲ δυνατὸν μὴ εἶναι ἐνδέχεται μὴ εἶναι· τὸ δὲ ἐνδεχόμενον μὴ εἶναι φθαρτόν, ἢ ἁπλῶς ἢ τοῦτο αὐτὸ ὃ λέγεται ἐνδέχεσθαι μὴ εἶναι, ἢ κατὰ τόπον ἢ κατὰ τὸ ποσὸν ἢ ποιόν· ἁπλῶς δὲ τὸ κατ' οὐσίαν. οὐθὲν ἄρα τῶν ἀφθάρτων ἁπλῶς δυνάμει ἔστιν ἁπλῶς (κατά τι δὲ οὐδὲν κωλύει, οἷον ποιὸν ἢ πού)· ἐνεργείᾳ ἄρα πάντα· οὐδὲ τῶν ἐξ ἀνάγκης ὄντων (καίτοι ταῦτα πρῶτα· εἰ γὰρ ταῦτα μὴ ἦν, οὐθὲν ἂν ἦν)· οὐδὲ δὴ κίνησις, εἴ τίς ἐστιν ἀΐδιος· οὐδ' εἴ τι κινούμενον ἀΐδιον, οὐκ ἔστι κατὰ δύναμιν κινούμενον ἀλλ' ἢ ποθὲν ποί (τούτου δ' ὕλην οὐδὲν κωλύει ὑπάρχειν), διὸ ἀεὶ ἐνεργεῖ ἥλιος καὶ ἄστρα καὶ ὅλος ὁ οὐρανός, καὶ οὐ φοβερὸν μή ποτε στῇ, ὃ φοβοῦνται οἱ περὶ φύσεως.

οὐδὲ κάμνει τοῦτο δρῶντα· οὐ γὰρ περὶ τὴν δύναμιν τῆς ἀντιφάσεως αὐτοῖς, οἷον τοῖς φθαρτοῖς, ἡ κίνησις, ὥστε ἐπίπονον εἶναι τὴν συνέχειαν τῆς κινήσεως· ἡ γὰρ οὐσία ὕλη καὶ δύναμις οὖσα, οὐκ ἐνέργεια, αἰτία τούτου. μιμεῖται δὲ τὰ ἄφθαρτα καὶ τὰ ἐν μεταβολῇ ὄντα, οἷον γῆ καὶ πῦρ. καὶ γὰρ ταῦτα ἀεὶ ἐνεργεῖ· καθ' αὑτὰ γὰρ καὶ ἐν αὑτοῖς ἔχει τὴν κίνησιν. αἱ δὲ ἄλλαι δυνάμεις, ἐξ ὧν διώρισται, πᾶσαι τῆς ἀντιφάσεώς εἰσιν· τὸ γὰρ δυνάμενον ὠδὶ κινεῖν δύναται καὶ μὴ ὠδί, ὅσα γε κατὰ λόγον· αἱ δ' ἄλογοι τῷ παρεῖναι καὶ μὴ τῆς ἀντιφάσεως ἔσονται αἱ αὐταί.

εἰ ἄρα τινὲς εἰσὶ φύσεις τοιαῦται ἢ οὐσίαι οἵας λέγουσιν οἱ ἐν τοῖς λόγοις τὰς ἰδέας, πολὺ μᾶλλον ἐπιστῆμον ἄν τι εἴη ἢ αὐτὸ ἐπιστήμη καὶ κινούμενον ἢ κίνησις· [1051a] ταῦτα γὰρ ἐνέργειαι μᾶλλον, ἐκεῖναι δὲ δυνάμεις τούτων. ὅτι

ENGLISH

Every capacity is at the same time a capacity for the contradictory. For what is not capable of being present could not be present in anything, but everything that is capable may fail to be active. So what is capable of being may both be and not be; the same thing, then, is capable both of being and of not being.

And what is capable of not being may not be; and what may not be is perishable—either without qualification, or in the very respect in which it is said that it may not be, whether with respect to place or to quantity or to quality; "without qualification" means with respect to substance. So nothing that is imperishable without qualification is potential without qualification (though nothing prevents its being so in some respect, for instance with respect to quality or place); all such things, then, are actual. Nor is anything that exists of necessity potential (and yet these things are primary; for if they did not exist, nothing would). Nor is motion potential, if there is any eternal motion. Nor, if anything is eternally in motion, is it in motion potentially, except with respect to its "from where" and "to where" (and nothing prevents its having matter for this). That is why the sun and the stars and the whole heaven are always active, and there is no fear that they may some day stop, as the natural philosophers fear.

Nor do they grow weary in doing this. For their motion does not involve, as it does for perishable things, the capacity for the contradictory, which would make the continuity of the motion laborious; the cause of that is substance's being matter and capacity, not actuality. Things involved in change, such as earth and fire, also imitate imperishable things. For these too are always active, since they have their motion in their own right and in themselves. The other capacities, on the distinctions we have drawn, are all capacities for the contradictory: what can move something in this way can also move it not in this way—that is, in the case of rational capacities; while the nonrational ones will be capacities for the contradictory by being present or absent.

If, then, there are any natures or substances of the sort that those who deal in abstract arguments say the Forms are, there would be something much more knowing than knowledge itself, and something much more in motion than motion itself;

GREEK	ENGLISH
μὲν οὖν πρότερον ἡ ἐνέργεια καὶ δυνάμεως καὶ πάσης ἀρχῆς μεταβλητικῆς, φανερόν.	1051a for these are more truly actualities, while the Forms are capacities for them. It is clear, then, that actuality is prior both to capacity and to every principle of change.

ACTUALITY IS BETTER THAN CAPACITY

A good actuality is better than the capacity for it; geometers discover proofs by actualizing constructions.

GREEK	ENGLISH
1051a ὅτι δὲ καὶ βελτίων καὶ τιμιωτέρα τῆς σπουδαίας δυνάμεως ἡ ἐνέργεια, ἐκ τῶνδε δῆλον. ὅσα γὰρ κατὰ τὸ δύνασθαι λέγεται, ταὐτόν ἐστι δυνατὸν τἀναντία, οἷον τὸ δύνασθαι λεγόμενον ὑγιαίνειν ταὐτόν ἐστι καὶ τὸ νοσεῖν, καὶ ἅμα· ἡ αὐτὴ γὰρ δύναμις τοῦ ὑγιαίνειν καὶ κάμνειν, καὶ ἠρεμεῖν καὶ κινεῖσθαι, καὶ οἰκοδομεῖν καὶ καταβάλλειν, καὶ οἰκοδομεῖσθαι καὶ καταπίπτειν. τὸ μὲν οὖν δύνασθαι τἀναντία ἅμα ὑπάρχει· τὰ δ' ἐναντία ἅμα ἀδύνατον, καὶ τὰς ἐνεργείας δὲ ἅμα ἀδύνατον ὑπάρχειν (οἷον ὑγιαίνειν καὶ κάμνειν), ὥστ' ἀνάγκη τούτων θάτερον εἶναι τἀγαθόν, τὸ δὲ δύνασθαι ὁμοίως ἀμφότερον ἢ οὐδέτερον· ἡ ἄρα ἐνέργεια βελτίων. ἀνάγκη δὲ καὶ ἐπὶ τῶν κακῶν τὸ τέλος καὶ τὴν ἐνέργειαν εἶναι χεῖρον τῆς δυνάμεως· τὸ γὰρ δυνάμενον ταὐτὸ ἄμφω τἀναντία.	That actuality is also better and more valuable than a good capacity is clear from the following. Whatever is said to be capable is capable, one and the same, of contraries: what is said to be capable of being healthy, for instance, is the same as what is capable of being ill, and at the same time; for it is the same capacity that is for being healthy and being ill, for resting and moving, for building and demolishing, for being built and collapsing. So the capacity for contraries belongs to a thing at the same time; but the contraries cannot belong at the same time, nor can the actualities (being healthy and being ill, for instance). So one of them must be the good, while the capacity is equally both or neither. Actuality, then, is better. And in the case of bad things the end and the actuality must be worse than the capacity; for what is capable is capable of both contraries alike.
δῆλον ἄρα ὅτι οὐκ ἔστι τὸ κακὸν παρὰ τὰ πράγματα· ὕστερον γὰρ τῇ φύσει τὸ κακὸν τῆς δυνάμεως. οὐκ ἄρα οὐδ' ἐν τοῖς ἐξ ἀρχῆς καὶ τοῖς ἀϊδίοις οὐθὲν ἔστιν οὔτε κακὸν οὔτε ἁμάρτημα οὔτε διεφθαρμένον (καὶ γὰρ ἡ διαφθορὰ τῶν κακῶν ἐστίν). εὑρίσκεται δὲ καὶ τὰ διαγράμματα ἐνεργείᾳ· διαιροῦντες γὰρ εὑρίσκουσιν. εἰ δ' ἦν διῃρημένα, φανερὰ ἂν ἦν· νῦν δ' ἐνυπάρχει δυνάμει. διὰ τί δύο ὀρθαὶ τὸ τρίγωνον; ὅτι αἱ περὶ μίαν στιγμὴν γωνίαι ἴσαι δύο ὀρθαῖς. εἰ οὖν ἀνῆκτο ἡ παρὰ τὴν πλευράν, ἰδόντι ἂν ἦν εὐθὺς δῆλον διὰ τί. ἐν ἡμικυκλίῳ ὀρθὴ καθόλου διὰ τί; ἐὰν ἴσαι τρεῖς, ἥ τε βάσις δύο καὶ ἡ ἐκ μέσου ἐπισταθεῖσα ὀρθή, ἰδόντι δῆλον τῷ ἐκεῖνο εἰδότι.	It is clear, then, that the bad does not exist apart from things; for the bad is by nature posterior to the capacity. So among things that are original and eternal there is nothing bad, no error, nothing corrupted (for corruption too is one of the bad things). Geometrical constructions too are discovered by being actualized; for people discover them by dividing figures. If the figures were already divided, the constructions would be obvious; as it is, they are present only potentially. Why are the angles of a triangle equal to two right angles? Because the angles about one point are equal to two right angles. If, then, the line parallel to the side had been drawn, it would at once be clear why to anyone who looked. Why is the angle in a semicircle a right angle, universally? If three lines are equal—the two halves of the base and the one set upright from the center—it is clear on looking, to anyone who knows that earlier proposition.[5]

GREEK	ENGLISH
ὥστε φανερὸν ὅτι τὰ δυνάμει ὄντα εἰς ἐνέργειαν ἀγόμενα εὑρίσκεται· αἴτιον δὲ ὅτι ἡ νόησις ἐνέργεια· ὥστ' ἐξ ἐνεργείας ἡ δύναμις, καὶ διὰ τοῦτο ποιοῦντες γιγνώσκουσιν (ὕστερον γὰρ γενέσει ἡ ἐνέργεια ἡ κατ' ἀριθμόν).	It is clear, then, that what is potential is discovered by being brought into actuality. The reason is that thinking is an actuality; so the capacity comes from actuality, and that is why people come to know by constructing. (For the actuality that is one in number is posterior in coming to be.)

BEING AS TRUTH

Truth for composites is combining what is combined; for simple things it is touching and thinking them.

GREEK	ENGLISH
ἐπεὶ δὲ τὸ ὂν λέγεται καὶ τὸ μὴ ὂν τὸ μὲν κατὰ τὰ σχήματα τῶν κατηγοριῶν, τὸ δὲ κατὰ δύναμιν ἢ ἐνέργειαν τούτων ἢ τἀναντία, [1051b] τὸ δὲ [κυριώτατα ὂν] ἀληθὲς ἢ ψεῦδος, τοῦτο δ' ἐπὶ τῶν πραγμάτων ἐστὶ τῷ συγκεῖσθαι ἢ διῃρῆσθαι, ὥστε ἀληθεύει μὲν ὁ τὸ διῃρημένον οἰόμενος διῃρῆσθαι καὶ τὸ συγκείμενον συγκεῖσθαι, ἔψευσται δὲ ὁ ἐναντίως ἔχων ἢ τὰ πράγματα, πότ' ἔστιν ἢ οὐκ ἔστι τὸ ἀληθὲς λεγόμενον ἢ ψεῦδος; τοῦτο γὰρ σκεπτέον τί λέγομεν. οὐ γὰρ διὰ τὸ ἡμᾶς οἴεσθαι ἀληθῶς σε λευκὸν εἶναι εἶ σὺ λευκός, ἀλλὰ διὰ τὸ σὲ εἶναι λευκὸν ἡμεῖς οἱ φάντες τοῦτο ἀληθεύομεν.	"Being" and "not being" are said in one way according to the figures of the categories, in another according to the potentiality or actuality of these or their opposites, [1051b] and in another as true or false. In the case of things, this depends on their being combined or divided, so that one who thinks that what is divided is divided, and that what is combined is combined, has the truth, while one whose thought is contrary to the state of things is in error. That being so, when is what we call truth or falsehood present, and when is it not? We must consider what we mean by this. For it is not because we truly think that you are pale that you are pale; rather, it is because you are pale that we who say so are telling the truth.
1051b εἰ δὴ τὰ μὲν ἀεὶ σύγκειται καὶ ἀδύνατα διαιρεθῆναι, τὰ δ' ἀεὶ διῄρηται καὶ ἀδύνατα συντεθῆναι, τὰ δ' ἐνδέχεται τἀναντία, τὸ μὲν εἶναί ἐστι τὸ συγκεῖσθαι καὶ ἓν εἶναι, τὸ δὲ μὴ εἶναι τὸ μὴ συγκεῖσθαι ἀλλὰ πλείω εἶναι· περὶ μὲν οὖν τὰ ἐνδεχόμενα ἡ αὐτὴ γίγνεται ψευδὴς καὶ ἀληθὴς δόξα καὶ ὁ λόγος ὁ αὐτός, καὶ ἐνδέχεται ὁτὲ μὲν ἀληθεύειν ὁτὲ δὲ ψεύδεσθαι· περὶ δὲ τὰ ἀδύνατα ἄλλως ἔχειν οὐ γίγνεται ὁτὲ μὲν ἀληθὲς ὁτὲ δὲ ψεῦδος, ἀλλ' ἀεὶ ταὐτὰ ἀληθῆ καὶ ψευδῆ.—περὶ δὲ δὴ τὰ ἀσύνθετα τί τὸ εἶναι ἢ μὴ εἶναι καὶ τὸ ἀληθὲς καὶ τὸ ψεῦδος;	If some things are always combined and cannot be divided, others are always divided and cannot be combined, and others admit of both contraries, then being is being combined and one, and not being is not being combined but being more than one. So with things that admit of contraries, the same opinion or the same statement comes to be false and true, and one can be right at one time and wrong at another; but with things that cannot be otherwise, the same thing does not come to be true at one time and false at another, but the same things are always true or false.—But in the case of incomposite things, what is being or not being, and truth and falsehood?
οὐ γάρ ἐστι σύνθετον, ὥστε εἶναι μὲν ὅταν συγκέηται, μὴ εἶναι δὲ ἐὰν διῃρημένον ᾖ, ὥσπερ τὸ λευκὸν ⟨τὸ⟩ ξύλον ἢ τὸ ἀσύμμετρον τὴν διάμετρον· οὐδὲ τὸ ἀληθὲς καὶ τὸ ψεῦδος ὁμοίως ἔτι ὑπάρξει καὶ ἐπ' ἐκείνων.	Such a thing is not composite, so as to be when it is combined and not be when it is divided, like "the wood is white" or "the diagonal is incommensurable"; nor will truth and falsehood still belong to these things in the same way as to those.

5 Drawn through one vertex, a line parallel to the opposite side forms, with the two other sides, three angles on a straight line equal to the triangle's three angles.

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ἢ ὥσπερ οὐδὲ τὸ ἀληθὲς ἐπὶ τούτων τὸ αὐτό, οὕτως οὐδὲ τὸ εἶναι, ἀλλ' ἔστι τὸ μὲν ἀληθὲς ἢ ψεῦδος, τὸ μὲν θιγεῖν καὶ φάναι ἀληθές (οὐ γὰρ ταὐτὸ κατάφασις καὶ φάσις), τὸ δ' ἀγνοεῖν μὴ θιγγάνειν (ἀπατηθῆναι γὰρ περὶ τὸ τί ἐστιν οὐκ ἔστιν ἀλλ' ἢ κατὰ συμβεβηκός· ὁμοίως δὲ καὶ περὶ τὰς μὴ συνθετὰς οὐσίας, οὐ γὰρ ἔστιν ἀπατηθῆναι· καὶ πᾶσαι εἰσὶν ἐνεργείᾳ, οὐ δυνάμει, ἐγίγνοντο γὰρ ἂν καὶ ἐφθείροντο, νῦν δὲ τὸ ὂν αὐτὸ οὐ γίγνεται οὐδὲ φθείρεται, ἔκ τινος γὰρ ἂν ἐγίγνετο·—ὅσα δή ἐστιν ὅπερ εἶναί τι καὶ ἐνέργειαι, περὶ ταῦτα οὐκ ἔστιν ἀπατηθῆναι ἀλλ' ἢ νοεῖν ἢ μή·

Rather, just as truth is not the same in these cases, neither is being. Truth or falsehood here is this: touching and saying is truth (for saying is not the same as affirming), and not touching is ignorance. (For one cannot be deceived about what a thing is, except accidentally; and the same holds for incomposite substances, since one cannot be deceived about them. They are all actual, not potential; otherwise they would come to be and perish, but as it is, being itself does not come to be or perish, since it would have to come to be from something.—About all things, then, that are just what some being is, and are actualities, one cannot be deceived; one either thinks them or does not.

ἀλλὰ τὸ τί ἐστι ζητεῖται περὶ αὐτῶν, εἰ τοιαῦτά ἐστιν ἢ μή)· τὸ δὲ εἶναι ὡς τὸ ἀληθές, καὶ τὸ μὴ εἶναι τὸ ὡς τὸ ψεῦδος, ἓν μέν ἐστιν, εἰ σύγκειται, ἀληθές, τὸ δ' εἰ μὴ σύγκειται, ψεῦδος· τὸ δὲ ἕν, εἴπερ ὄν, οὕτως ἐστίν, εἰ δὲ μὴ οὕτως, οὐκ ἔστιν· [1052a] τὸ δὲ ἀληθὲς τὸ νοεῖν ταῦτα· τὸ δὲ ψεῦδος οὐκ ἔστιν, οὐδὲ ἀπάτη, ἀλλὰ ἄγνοια, οὐχ οἵα ἡ τυφλότης· ἡ μὲν γὰρ τυφλότης ἐστὶν ὡς ἂν εἰ τὸ νοητικὸν ὅλως μὴ ἔχοι τις.

What we do inquire about them is what they are—whether they are of such a kind or not.) As for being in the sense of truth, and not being in the sense of falsehood: in one case, if the terms are combined, it is true, and if they are not combined, false; in the other case, if the thing is, it is in just this way, and if it is not in this way, it is not at all. [1052a] Truth is thinking these things; and there is no falsehood, nor deception, but only ignorance—and not ignorance like blindness, for blindness would be like lacking the capacity for thought altogether.

1052a φανερὸν δὲ καὶ ὅτι περὶ τῶν ἀκινήτων οὐκ ἔστιν ἀπάτη κατὰ τὸ ποτέ, εἴ τις ὑπολαμβάνει ἀκίνητα. οἷον τὸ τρίγωνον εἰ μὴ μεταβάλλειν οἴεται, οὐκ οἰήσεται ποτὲ μὲν δύο ὀρθὰς ἔχειν ποτὲ δὲ οὔ (μεταβάλλοι γὰρ ἄν), ἀλλὰ τὶ μὲν τὶ δ' οὔ, οἷον ἄρτιον ἀριθμὸν πρῶτον εἶναι μηθένα, ἢ τινὰς μὲν τινὰς δ' οὔ· ἀριθμῷ δὲ περὶ ἕνα οὐδὲ τοῦτο· οὐ γὰρ ἔτι τινὰ μὲν τινὰ δὲ οὔ οἰήσεται, ἀλλ' ἀληθεύσει ἢ ψεύσεται ὡς ἀεὶ οὕτως ἔχοντος.

It is also clear that about unchangeable things there is no deception with respect to time, if one supposes them to be unchangeable. If someone thinks that the triangle does not change, for instance, he will not think that it sometimes has angles equal to two right angles and sometimes does not (for then it would change); but he may think that one thing has an attribute and another does not—that no even number is prime, for instance, or that some are and some are not. But about what is numerically one not even this is possible; for one will no longer think that one instance is so and another not, but will be right or wrong on the understanding that it is always so.

Book Iota (X)

Unity, and contraries.

CHAPTER 1

GREEK

τὸ ἓν ὅτι μὲν λέγεται πολλαχῶς, ἐν τοῖς περὶ τοῦ ποσαχῶς διῃρημένοις εἴρηται πρότερον· πλεοναχῶς δὲ λεγομένου οἱ συγκεφαλαιούμενοι τρόποι εἰσὶ τέτταρες τῶν πρώτων καὶ καθ' αὑτὰ λεγομένων ἓν ἀλλὰ μὴ κατὰ συμβεβηκός. τό τε γὰρ συνεχὲς ἢ ἁπλῶς ἢ μάλιστά γε τὸ φύσει καὶ μὴ ἁφῇ μηδὲ δεσμῷ (καὶ τούτων μᾶλλον ἓν καὶ πρότερον οὗ ἀδιαιρετωτέρα ἡ κίνησις καὶ μᾶλλον ἁπλῆ)· ἔτι τοιοῦτον καὶ μᾶλλον τὸ ὅλον καὶ ἔχον τινὰ μορφὴν καὶ εἶδος, μάλιστα δ' εἴ τι φύσει τοιοῦτον καὶ μὴ βίᾳ, ὥσπερ ὅσα κόλλῃ ἢ γόμφῳ ἢ συνδέσμῳ, ἀλλὰ ἔχει ἐν αὑτῷ τὸ αἴτιον αὐτῷ τοῦ συνεχὲς εἶναι.

ENGLISH

That "one" is said in many ways has been stated earlier, in our distinctions of the various senses of terms. But though it is said in several ways, the ways in which things are called one primarily and in their own right, and not accidentally, can be summed up as four. First, the continuous, either without qualification or, most of all, what is continuous by nature and not by contact or by being bound together (and among these, that is more one, and prior, whose motion is more indivisible and more simple). Second, and still more, what is a whole and has a certain shape and form—most of all if something is such by nature and not by force, as things are that are held together by glue or nails or a binding, but has in itself the cause of its being continuous.[1]

τοιοῦτον δὲ τῷ μίαν τὴν κίνησιν εἶναι καὶ ἀδιαίρετον τόπῳ καὶ χρόνῳ, ὥστε φανερόν, εἴ τι φύσει κινήσεως ἀρχὴν ἔχει τῆς πρώτης τὴν πρώτην, οἷον λέγω φορᾶς κυκλοφορίαν, ὅτι τοῦτο πρῶτον μέγεθος ἕν. τὰ μὲν δὴ οὕτως ἓν ᾗ συνεχὲς ἢ ὅλον, τὰ δὲ ὧν ἂν ὁ λόγος εἷς ᾖ, τοιαῦτα δὲ ὧν ἡ νόησις μία, τοιαῦτα δὲ ὧν ἀδιαίρετος, ἀδιαίρετος δὲ τοῦ ἀδιαιρέτου εἴδει ἢ ἀριθμῷ· ἀριθμῷ μὲν οὖν τὸ καθ' ἕκαστον ἀδιαίρετον, εἴδει δὲ τὸ τῷ γνωστῷ καὶ τῇ ἐπιστήμῃ, ὥσθ' ἓν ἂν εἴη πρῶτον τὸ ταῖς οὐσίαις αἴτιον τοῦ ἑνός.

A thing is of this kind by having a motion that is one and indivisible in place and time; so it is clear that if something has by nature the first principle of the first kind of motion—I mean, of locomotion, the principle of circular motion—this is the primary one magnitude. Some things, then, are one in this way, as continuous or whole; others are one whose account is one. Such are things the thought of which is one, and such are things the thought of which is indivisible; and a thought is indivisible when it is of what is indivisible in form or in number. In number, the particular is indivisible; in form, what is indivisible in being known and in scientific knowledge; so that what would be one primarily is what causes substances to be one.

λέγεται μὲν οὖν τὸ ἓν τοσαυταχῶς, τό τε συνεχὲς φύσει καὶ τὸ ὅλον, καὶ τὸ καθ' ἕκαστον καὶ τὸ καθόλου, πάντα δὲ ταῦτα ἓν τῷ ἀδιαίρετον εἶναι τῶν μὲν τὴν κίνησιν τῶν δὲ τὴν νόησιν ἢ τὸν λόγον. [1052b] —δεῖ δὲ κατανοεῖν ὅτι οὐχ ὡσαύτως ληπτέον λέγεσθαι ποῖά τε ἓν λέγεται, καὶ τί ἐστι τὸ ἑνὶ εἶναι καὶ τίς αὐτοῦ λόγος. λέγεται μὲν γὰρ τὸ

"One," then, is said in this many ways: the naturally continuous, the whole, the particular, and the universal. All of these are one by being indivisible—some in their motion, others in their thought or account. [1052b] But we must realize that the questions what sorts of things are called one, and what

1 The earlier distinctions referred to are in Book Δ.

GREEK

ἓν τοσαυταχῶς, καὶ ἕκαστον ἔσται ἓν τούτων, ᾧ ἂν ὑπάρχῃ τις τούτων τῶν τρόπων· τὸ δὲ ἑνὶ εἶναι ὁτὲ μὲν τούτων τινὶ ἔσται, ὁτὲ δὲ ἄλλῳ ὃ καὶ μᾶλλον ἐγγὺς τῷ ὀνόματί ἐστι, τῇ δυνάμει δ' ἐκεῖνα, ὥσπερ καὶ περὶ στοιχείου καὶ αἰτίου εἰ δέοι λέγειν ἐπί τε τοῖς πράγμασι διορίζοντα καὶ τοῦ ὀνόματος ὅρον ἀποδιδόντα.

1052b ἔστι μὲν γὰρ ὡς στοιχεῖον τὸ πῦρ (ἔστι δ' ἴσως καθ' αὑτὸ καὶ τὸ ἄπειρον ἢ τι ἄλλο τοιοῦτον), ἔστι δ' ὡς οὔ· οὐ γὰρ τὸ αὐτὸ πυρὶ καὶ στοιχείῳ εἶναι, ἀλλ' ὡς μὲν πρᾶγμά τι καὶ φύσις τὸ πῦρ στοιχεῖον, τὸ δὲ ὄνομα σημαίνει τὸ τοδὶ συμβεβηκέναι αὐτῷ, ὅτι ἐστί τι ἐκ τούτου ὡς πρώτου ἐνυπάρχοντος. οὕτω καὶ ἐπὶ αἰτίου καὶ ἑνὸς καὶ τῶν τοιούτων ἁπάντων, διὸ καὶ τὸ ἑνὶ εἶναι τὸ ἀδιαιρέτῳ ἐστὶν εἶναι, ὅπερ τόδε ὄντι καὶ ἰδίᾳ χωριστῷ ἢ τόπῳ ἢ εἴδει ἢ διανοίᾳ, ἢ καὶ τὸ ὅλῳ καὶ ἀδιαιρέτῳ, μάλιστα δὲ τὸ μέτρῳ εἶναι πρώτῳ ἑκάστου γένους καὶ κυριώτατα τοῦ ποσοῦ· ἐντεῦθεν γὰρ ἐπὶ τὰ ἄλλα ἐλήλυθεν.

μέτρον γάρ ἐστιν ᾧ τὸ ποσὸν γιγνώσκεται· γιγνώσκεται δὲ ἢ ἑνὶ ἢ ἀριθμῷ τὸ ποσὸν ᾗ ποσόν, ὁ δὲ ἀριθμὸς ἅπας ἑνί, ὥστε πᾶν τὸ ποσὸν γιγνώσκεται ᾗ ποσὸν τῷ ἑνί, καὶ ᾧ πρώτῳ ποσὰ γιγνώσκεται, τοῦτο αὐτὸ ἕν· διὸ τὸ ἓν ἀριθμοῦ ἀρχὴ ᾗ ἀριθμός. ἐντεῦθεν δὲ καὶ ἐν τοῖς ἄλλοις λέγεται μέτρον τε ᾧ ἕκαστον πρώτῳ γιγνώσκεται, καὶ τὸ μέτρον ἑκάστου ἕν, ἐν μήκει, ἐν πλάτει, ἐν βάθει, ἐν βάρει, ἐν τάχει (τὸ γὰρ βάρος καὶ τάχος κοινὸν ἐν τοῖς ἐναντίοις· διττὸν γὰρ ἑκάτερον αὐτῶν, οἷον βάρος τό τε ὁποσηνοῦν ἔχον ῥοπὴν καὶ τὸ ἔχον ὑπεροχὴν ῥοπῆς, καὶ τάχος τό τε ὁποσηνοῦν κίνησιν ἔχον καὶ τὸ ὑπεροχὴν κινήσεως· ἔστι γάρ τι τάχος καὶ τοῦ βραδέος καὶ βάρος τοῦ κουφοτέρου).

ἐν πᾶσι δὴ τούτοις μέτρον καὶ ἀρχὴ ἕν τι καὶ ἀδιαίρετον, ἐπεὶ καὶ ἐν ταῖς γραμμαῖς χρῶνται ὡς ἀτόμῳ τῇ ποδιαίᾳ. πανταχοῦ γὰρ τὸ μέτρον ἕν τι ζητοῦσι καὶ ἀδιαίρετον· τοῦτο δὲ τὸ ἁπλοῦν ἢ τῷ ποιῷ ἢ τῷ ποσῷ. ὅπου μὲν οὖν δοκεῖ μὴ εἶναι ἀφελεῖν ἢ προσθεῖναι, τοῦτο ἀκριβὲς τὸ μέτρον (διὸ τὸ τοῦ ἀριθμοῦ ἀκριβέστατον· 1053a τὴν γὰρ

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being one is and what its account is, should not be taken to be the same. "One" is said in these many ways, and each of the things to which one of these ways belongs will be one; but being one will sometimes be being one of these, and sometimes being something else, which is closer to the meaning of the word, while those others are so potentially. So too with "element" and "cause," if one had to speak both determining the things and giving the definition of the name.

For in one sense fire is an element (and so perhaps, in its own right, is the infinite or some other such thing), and in another sense it is not; for being fire and being an element are not the same. As a thing and a nature, fire is an element; but the name "element" signifies that it has this attribute: that something is made of it as a primary constituent. So too with "cause" and "one" and all such terms. That is why being one is being indivisible—being just a this, separate on its own, either in place or in form or in thought—or being whole and indivisible; but most of all it is being the first measure of each genus, and most strictly of quantity; for it is from this that it has been extended to the other cases.

For a measure is that by which quantity is known; and quantity qua quantity is known either by a one or by a number, and every number is known by a one. So every quantity qua quantity is known by the one, and that by which quantities are first known is the one itself. That is why the one is the principle of number qua number. From this, in other cases too, the measure is said to be that by which each thing is first known, and the measure of each is a one—in length, breadth, depth, weight, speed. (Weight and speed are common to both contraries, since each is twofold: "weight," for instance, is both what has any downward tendency whatever and what has an excess of downward tendency; and "speed" is both what has any motion whatever and what has an excess of motion. For even what is slow has some speed, and what is lighter some weight.)

In all these, then, the measure and principle is something one and indivisible, since even with lines people treat the foot-length as indivisible. For everywhere they look for something one and indivisible as the measure; and this is what is simple either in quality or in quantity. Where it

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μονάδα τιθέασι πάντῃ ἀδιαίρετον)· ἐν δὲ τοῖς ἄλλοις μιμοῦνται τὸ τοιοῦτον· ἀπὸ γὰρ σταδίου καὶ ταλάντου καὶ ἀεὶ τοῦ μείζονος λάθοι ἂν καὶ προστεθέν τι καὶ ἀφαιρεθὲν μᾶλλον ἢ ἀπὸ ἐλάττονος· ὥστε ἀφ' οὗ πρώτου κατὰ τὴν αἴσθησιν μὴ ἐνδέχεται, τοῦτο πάντες ποιοῦνται μέτρον καὶ ὑγρῶν καὶ ξηρῶν καὶ βάρους καὶ μεγέθους· καὶ τότ' οἴονται εἰδέναι τὸ ποσόν, ὅταν εἰδῶσι διὰ τούτου τοῦ μέτρου.

1053a καὶ δὴ καὶ κίνησιν τῇ ἁπλῇ κινήσει καὶ τῇ ταχίστῃ (ὀλίγιστον γὰρ αὕτη ἔχει χρόνον)· διὸ ἐν τῇ ἀστρολογίᾳ τὸ τοιοῦτον ἓν ἀρχὴ καὶ μέτρον (τὴν κίνησιν γὰρ ὁμαλὴν ὑποτίθενται καὶ ταχίστην τὴν τοῦ οὐρανοῦ, πρὸς ἣν κρίνουσι τὰς ἄλλας), καὶ ἐν μουσικῇ δίεσις, ὅτι ἐλάχιστον, καὶ ἐν φωνῇ στοιχεῖον. καὶ ταῦτα πάντα ἕν τι οὕτως, οὐχ ὡς κοινόν τι τὸ ἓν ἀλλ' ὥσπερ εἴρηται.—οὐκ ἀεὶ δὲ τῷ ἀριθμῷ ἓν τὸ μέτρον ἀλλ' ἐνίοτε πλείω, οἷον αἱ διέσεις δύο, αἱ μὴ κατὰ τὴν ἀκοὴν ἀλλ' ἐν τοῖς λόγοις, καὶ αἱ φωναὶ πλείους αἷς μετροῦμεν, καὶ ἡ διάμετρος δυσὶ μετρεῖται καὶ ἡ πλευρά, καὶ τὰ μεγέθη πάντα.

οὕτω δὴ πάντων μέτρον τὸ ἕν, ὅτι γνωρίζομεν ἐξ ὧν ἐστὶν ἡ οὐσία διαιροῦντες ἢ κατὰ τὸ ποσὸν ἢ κατὰ τὸ εἶδος. καὶ διὰ τοῦτο τὸ ἓν ἀδιαίρετον, ὅτι τὸ πρῶτον ἑκάστων ἀδιαίρετον. οὐχ ὁμοίως δὲ πᾶν ἀδιαίρετον, οἷον ποὺς καὶ μονάς, ἀλλὰ τὸ μὲν πάντῃ, τὸ δ' εἰς ἀδιαίρετα πρὸς τὴν αἴσθησιν θετέον, ὥσπερ εἴρηται ἤδη· ἴσως γὰρ πᾶν συνεχὲς διαιρετόν. ἀεὶ δὲ συγγενὲς τὸ μέτρον· μεγεθῶν μὲν γὰρ μέγεθος, καὶ καθ' ἕκαστον μήκους μῆκος, πλάτους πλάτος, φωνῆς φωνή, βάρους βάρος, μονάδων μονάς. οὕτω γὰρ δεῖ λαμβάνειν, ἀλλ' οὐχ ὅτι ἀριθμῶν ἀριθμός· καίτοι ἔδει, εἰ ὁμοίως· ἀλλ' οὐχ ὁμοίως ἀξιοῖ ἀλλ' ὥσπερ εἰ μονάδων μονάδας ἀξιώσειε μέτρον ἀλλὰ μὴ μονάδα· ὁ δ' ἀριθμὸς πλῆθος μονάδων.

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seems that nothing can be taken away or added, the measure is exact (which is why the measure of number is the most exact, [1053a] since they posit the unit as indivisible in every respect); in other cases they imitate this. For from a stade or a talent, and in general from what is larger, an addition or subtraction would more easily go unnoticed than from something smaller. So the first thing from which, as far as perception goes, nothing can be taken away is what everyone makes the measure, whether of liquids or of dry goods, of weight or of size; and they think they know the quantity when they know it by means of this measure.[2]

They also measure motion by simple motion, the fastest, since it takes the least time. That is why in astronomy a one of this kind is the principle and measure (for they assume that the motion of the heaven is uniform and the fastest, and judge the others by it); in music it is the quarter-tone, because it is the smallest; and in speech it is the letter. All these are one in this sense—not as though "one" were something common to them, but in the way we have described.—But the measure is not always one in number; sometimes there are several. There are two quarter-tones, for instance (those distinguished not by hearing but in the ratios); the spoken sounds by which we measure are more than one; and the diagonal and the side are measured by two measures, as are all magnitudes.

So the one is the measure of all things, because we come to know what a substance consists of by dividing it, either in quantity or in form. And the one is indivisible because what is first in each class of things is indivisible. But not everything is indivisible in the same way—the foot and the unit, for instance: the one is indivisible in every respect, while the other must be placed among things indivisible to perception, as we have already said; for perhaps everything continuous is divisible. The measure is always of the same kind as what it measures: of magnitudes a magnitude, and in particular of length a length, of breadth a breadth, of spoken sounds a spoken sound, of weight a weight, of units a unit. This is how one should take it, and not say that the measure of numbers is a number—though one ought to, if the cases were alike. But the claim would not be alike;

2 A stade was a unit of length of about 600 feet; a talent was a large unit of weight.

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	it would be as if one claimed that the measure of units is units and not a unit; for a number is a plurality of units.
καὶ τὴν ἐπιστήμην δὲ μέτρον τῶν πραγμάτων λέγομεν καὶ τὴν αἴσθησιν διὰ τὸ αὐτό, ὅτι γνωρίζομέν τι αὐταῖς, ἐπεὶ μετροῦνται μᾶλλον ἢ μετροῦσιν. ἀλλὰ συμβαίνει ἡμῖν ὥσπερ ἂν εἰ ἄλλου ἡμᾶς μετροῦντος ἐγνωρίσαμεν πηλίκοι ἐσμὲν τῷ τὸν πῆχυν ἐπὶ τοσοῦτον ἡμῶν ἐπιβάλλειν. Πρωταγόρας δ' ἄνθρωπόν φησι πάντων εἶναι μέτρον, ὥσπερ ἂν εἰ τὸν ἐπιστήμονα εἰπὼν ἢ τὸν αἰσθανόμενον· [1053b] τούτους δ' ὅτι ἔχουσιν ὁ μὲν αἴσθησιν ὁ δὲ ἐπιστήμην, ἃ φαμεν εἶναι μέτρα τῶν ὑποκειμένων. οὐθὲν δὴ λέγοντες περιττὸν φαίνονταί τι λέγειν.	We also call knowledge and perception the measure of things, for the same reason—because we come to know something by them—though in fact they are measured rather than measuring. But what happens to us is as if someone else were measuring us, and we came to know how tall we are by his applying the cubit-rule to us so many times. Protagoras says that a human being is the measure of all things, as if he meant the knower or the perceiver; [1053b] and these because they have, respectively, knowledge and perception, which we say are the measures of their objects. So while saying nothing out of the ordinary, these people appear to be saying something remarkable.
1053b ὅτι μὲν οὖν τὸ ἑνὶ εἶναι μάλιστά ἐστι κατὰ τὸ ὄνομα ἀφορίζοντι μέτρον τι, καὶ κυριώτατα τοῦ ποσοῦ, εἶτα τοῦ ποιοῦ, φανερόν· ἔσται δὲ τοιοῦτον τὸ μὲν ἂν ᾖ ἀδιαίρετον κατὰ τὸ ποσόν, τὸ δὲ ἂν κατὰ τὸ ποιόν· διόπερ ἀδιαίρετον τὸ ἓν ἢ ἁπλῶς ἢ ᾗ ἕν.	It is clear, then, that being one, if one defines it according to the meaning of the name, is most of all a kind of measure—most strictly of quantity, and next of quality. Something will be of this kind if it is indivisible, in the one case in quantity, in the other in quality. That is why the one is indivisible, either without qualification or qua one.

IS THE ONE A SUBSTANCE?

In every category the one is some particular nature, never a substance in its own right.

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κατὰ δὲ τὴν οὐσίαν καὶ τὴν φύσιν ζητητέον ποτέρως ἔχει, καθάπερ ἐν τοῖς διαπορήμασιν ἐπήλθομεν τί τὸ ἕν ἐστι καὶ πῶς δεῖ περὶ αὐτοῦ λαβεῖν, πότερον ὡς οὐσίας τινὸς οὔσης αὐτοῦ τοῦ ἑνός, καθάπερ οἵ τε Πυθαγόρειοί φασι πρότερον καὶ Πλάτων ὕστερον, ἢ μᾶλλον ὑπόκειταί τις φύσις καὶ [πῶς] δεῖ γνωριμωτέρως λεχθῆναι καὶ μᾶλλον ὥσπερ οἱ περὶ φύσεως· ἐκείνων γὰρ ὁ μέν τις φιλίαν εἶναί φησι τὸ ἓν ὁ δ' ἀέρα ὁ δὲ τὸ ἄπειρον.	But with regard to its substance and nature we must inquire how it stands, as we did in going through the puzzles: what the one is and how we should conceive it—whether the one itself is a kind of substance, as first the Pythagoreans and later Plato say, or rather some nature underlies it, and it should be explained in more familiar terms, more in the manner of the natural philosophers. For among them, one says the one is Love, another air, another the infinite.[3]
εἰ δὴ μηδὲν τῶν καθόλου δυνατὸν οὐσίαν εἶναι, καθάπερ ἐν τοῖς περὶ οὐσίας καὶ περὶ τοῦ ὄντος εἴρηται λόγοις, οὐδ' αὐτὸ τοῦτο οὐσίαν ὡς ἕν τι παρὰ τὰ πολλὰ δυνατὸν εἶναι (κοινὸν γάρ) ἀλλ' ἢ κατηγόρημα μόνον, δῆλον ὡς οὐδὲ τὸ ἕν· τὸ γὰρ ὂν καὶ τὸ ἓν καθόλου κατηγορεῖται μάλιστα πάντων. ὥστε οὔτε τὰ γένη φύσεις τινὲς καὶ οὐσίαι χωρισταὶ τῶν ἄλλων εἰσίν, οὔτε τὸ ἓν γένος ἐνδέχεται	If, then, no universal can be a substance, as was said in our discussions of substance and being, and if being itself cannot be a substance in the sense of a one beside the many (since it is common) but only a predicate, clearly the one cannot be a substance either; for being and one are the most universal of all predicates. So neither are

3 The natural philosophers meant are Empedocles (Love), Anaximenes (air), and Anaximander (the infinite).

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εἶναι διὰ τὰς αὐτὰς αἰτίας δι' ἅσπερ οὐδὲ τὸ ὂν οὐδὲ τὴν οὐσίαν.

ἔτι δ' ὁμοίως ἐπὶ πάντων ἀναγκαῖον ἔχειν· λέγεται δ' ἰσαχῶς τὸ ὂν καὶ τὸ ἕν· ὥστ' ἐπείπερ ἐν τοῖς ποιοῖς ἐστί τι τὸ ἓν καί τις φύσις, ὁμοίως δὲ καὶ ἐν τοῖς ποσοῖς, δῆλον ὅτι καὶ ὅλως ζητητέον τί τὸ ἕν, ὥσπερ καὶ τί τὸ ὄν, ὡς οὐχ ἱκανὸν ὅτι τοῦτο αὐτὸ ἡ φύσις αὐτοῦ. ἀλλὰ μὴν ἕν γε χρώμασίν ἐστι τὸ ἓν χρῶμα, οἷον τὸ λευκόν, εἶτα τὰ ἄλλα ἐκ τούτου καὶ τοῦ μέλανος φαίνεται γιγνόμενα, τὸ δὲ μέλαν στέρησις λευκοῦ ὥσπερ καὶ φωτὸς σκότος [τοῦτο δ' ἐστὶ στέρησις φωτός]· ὥστε εἰ τὰ ὄντα ἦν χρώματα, ἦν ἂν ἀριθμός τις τὰ ὄντα, ἀλλὰ τίνων; δῆλον δὴ ὅτι χρωμάτων, καὶ τὸ ἓν ἦν ἄν τι ἕν, οἷον τὸ λευκόν.

ὁμοίως δὲ καὶ εἰ μέλη τὰ ὄντα ἦν, ἀριθμὸς ἂν ἦν, διέσεων μέντοι, ἀλλ' οὐκ ἀριθμὸς ἡ οὐσία αὐτῶν· καὶ τὸ ἓν ἦν ἄν τι οὗ ἡ οὐσία οὐ τὸ ἓν ἀλλὰ δίεσις. 1054a ὁμοίως δὲ καὶ ἐπὶ τῶν φθόγγων στοιχείων ἂν ἦν τὰ ὄντα ἀριθμός, καὶ τὸ ἓν στοιχεῖον φωνῆεν. καὶ εἰ σχήματα εὐθύγραμμα, σχημάτων ἂν ἦν ἀριθμός, καὶ τὸ ἓν τὸ τρίγωνον.

1054a ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τῶν ἄλλων γενῶν, ὥστ' εἴπερ καὶ ἐν τοῖς πάθεσι καὶ ἐν τοῖς ποιοῖς καὶ ἐν τοῖς ποσοῖς καὶ ἐν κινήσει ἀριθμῶν ὄντων καὶ ἑνός τινος ἐν ἅπασιν ὅ τε ἀριθμὸς τινῶν καὶ τὸ ἓν τί ἕν, ἀλλ' οὐχὶ τοῦτο αὐτὸ ἡ οὐσία, καὶ ἐπὶ τῶν οὐσιῶν ἀνάγκη ὡσαύτως ἔχειν· ὁμοίως γὰρ ἔχει ἐπὶ πάντων.—ὅτι μὲν οὖν τὸ ἓν ἐν ἅπαντί γένει ἐστί τις φύσις, καὶ οὐδενὸς τοῦτό γ' αὐτὸ ἡ φύσις τὸ ἕν, φανερόν, ἀλλ' ὥσπερ ἐν χρώμασι χρῶμα ἓν ζητητέον αὐτὸ τὸ ἕν, οὕτω καὶ ἐν οὐσίᾳ οὐσίαν μίαν αὐτὸ τὸ ἕν·

ὅτι δὲ ταὐτὸ σημαίνει πως τὸ ἓν καὶ τὸ ὄν, δῆλον τῷ τε παρακολουθεῖν ἰσαχῶς ταῖς κατηγορίαις καὶ μὴ εἶναι ἐν μηδεμιᾷ (οἷον οὔτ' ἐν τῇ τί ἐστιν οὔτ' ἐν τῇ ποῖον, ἀλλ' ὁμοίως ἔχει ὥσπερ τὸ ὄν) καὶ τῷ μὴ προσκατηγορεῖσθαι ἕτερόν τι τὸ εἷς ἄνθρωπος τοῦ ἄνθρωπος (ὥσπερ οὐδὲ τὸ εἶναι παρὰ τὸ τί ἢ ποῖον ἢ πόσον) καὶ ⟨τῷ εἶναι⟩ τὸ ἑνὶ εἶναι τὸ ἑκάστῳ εἶναι.

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genera natures and substances separate from other things, nor can the one be a genus, for the same reasons that being and substance cannot.

Further, the case must be alike for all categories; and "being" and "one" are said in equally many ways. So since among qualities the one is something definite, some nature, and likewise among quantities, clearly we must also ask in general what the one is, just as we must ask what being is, since it is not enough to say that its nature is just this. Now among colors the one is a color, white for instance, and the other colors are seen to be produced from this and black, black being the privation of white as darkness is of light. So if the things that are were colors, the things that are would be a number—but a number of what? Clearly of colors; and the one would be some one thing, white for instance.

Likewise, if the things that are were tunes, they would be a number—a number of quarter-tones, however, and their substance would not be number; and the one would be something whose substance is not the one but the quarter-tone. 1054a Likewise with spoken sounds: the things that are would be a number of letters, and the one would be a vowel. And if they were rectilinear figures, they would be a number of figures, and the one would be the triangle.

The same argument applies to the other genera too. So if among affections, qualities, quantities, and motion there are numbers and some one in all of them, and the number is a number of certain things and the one is a certain one, and its substance is not just this, then the same must hold for substances too; for it holds alike in all cases.—It is clear, then, that in every genus the one is a certain nature, and that in no case is the nature of anything just this, the one. Rather, just as among colors we must look for the one itself as one color, so too among substances we must look for the one itself as one substance.

That "one" and "being" in a sense signify the same thing is clear from several facts: they follow the categories in equally many ways and are not contained in any one of them (neither in the what-it-is, for instance, nor in quality, but are related to them in the same way that being is); "one human being" predicates nothing different from "human being" (just as being is nothing beside the what or

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the quality or the quantity); and being one is being each thing.

THE ONE AND THE MANY

The one and plurality are contraries; sameness, likeness and equality belong to the one.

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ἀντίκειται δὲ τὸ ἓν καὶ τὰ πολλὰ κατὰ πλείους τρόπους, ὧν ἕνα τὸ ἓν καὶ τὸ πλῆθος ὡς ἀδιαίρετον καὶ διαιρετόν· τὸ μὲν γὰρ ἢ διῃρημένον ἢ διαιρετὸν πλῆθός τι λέγεται, τὸ δὲ ἀδιαίρετον ἢ μὴ διῃρημένον ἕν. ἐπεὶ οὖν αἱ ἀντιθέσεις τετραχῶς, καὶ τούτων κατὰ στέρησιν λέγεται θάτερον, ἐναντία ἂν εἴη καὶ οὔτε ὡς ἀντίφασις οὔτε ὡς τὰ πρός τι λεγόμενα. λέγεται δὲ ἐκ τοῦ ἐναντίου καὶ δηλοῦται τὸ ἕν, ἐκ τοῦ διαιρετοῦ τὸ ἀδιαίρετον, διὰ τὸ μᾶλλον αἰσθητὸν τὸ πλῆθος εἶναι καὶ τὸ διαιρετὸν ἢ τὸ ἀδιαίρετον, ὥστε τῷ λόγῳ πρότερον τὸ πλῆθος τοῦ ἀδιαιρέτου διὰ τὴν αἴσθησιν.

The one and the many are opposed in several ways, one of which is the opposition of the one and plurality as indivisible and divisible. For what is either divided or divisible is called a plurality, and what is indivisible or undivided is called one. Now since oppositions are of four kinds, and one of this pair is so called by privation, they will be contraries, and not opposed as contradictories or as relatives. The one is named and made clear from its contrary—the indivisible from the divisible—because plurality and the divisible are more perceptible than the indivisible; so in account plurality is prior to the indivisible, because of perception.

ἔστι δὲ τοῦ μὲν ἑνός, ὥσπερ καὶ ἐν τῇ διαιρέσει τῶν ἐναντίων διεγράψαμεν, τὸ ταὐτὸ καὶ ὅμοιον καὶ ἴσον, τοῦ δὲ πλήθους τὸ ἕτερον καὶ ἀνόμοιον καὶ ἄνισον. λεγομένου δὲ τοῦ ταὐτοῦ πολλαχῶς, ἕνα μὲν τρόπον κατ' ἀριθμὸν λέγομεν ἐνίοτε αὐτό, τὸ δ' ἐὰν καὶ λόγῳ καὶ ἀριθμῷ ἓν ᾖ, οἷον σὺ σαυτῷ καὶ τῷ εἴδει καὶ τῇ ὕλῃ ἕν· ἔτι δ' ἐὰν ὁ λόγος ὁ τῆς πρώτης οὐσίας εἷς ᾖ, [1054b] οἷον αἱ ἴσαι γραμμαὶ εὐθεῖαι αἱ αὐταί, καὶ τὰ ἴσα καὶ ἰσογώνια τετράγωνα, καίτοι πλείω· ἀλλ' ἐν τούτοις ἡ ἰσότης ἑνότης.

To the one belong, as we also set out in our division of the contraries, the same, the like, and the equal; to plurality belong the other, the unlike, and the unequal. "The same" is said in many ways. In one way we sometimes call it so in number; in another, if a thing is one both in account and in number, as you are one with yourself both in form and in matter; and again, if the account of its primary substance is one, [1054b] as equal straight lines are the same, and so are equal squares with equal angles, though they are several; but in these, equality is unity.

1054b ὅμοια δὲ ἐὰν μὴ ταὐτὰ ἁπλῶς ὄντα, μηδὲ κατὰ τὴν οὐσίαν ἀδιάφορα τὴν συγκειμένην, κατὰ τὸ εἶδος ταὐτὰ ᾖ, ὥσπερ τὸ μεῖζον τετράγωνον τῷ μικρῷ ὅμοιον, καὶ αἱ ἄνισοι εὐθεῖαι· αὗται γὰρ ὅμοιαι μέν, αἱ αὐταὶ δὲ ἁπλῶς οὔ. τὰ δὲ ἐὰν τὸ αὐτὸ εἶδος ἔχοντα, ἐν οἷς τὸ μᾶλλον καὶ ἧττον ἐγγίγνεται, μήτε μᾶλλον ᾖ μήτε ἧττον. τὰ δὲ ἐὰν ᾖ τὸ αὐτὸ πάθος καὶ ἓν τῷ εἴδει, οἷον τὸ λευκόν, σφόδρα καὶ ἧττον, ὅμοιά φασιν εἶναι ὅτι ἓν τὸ εἶδος αὐτῶν. τὰ δὲ ἐὰν πλείω ἔχῃ ταὐτὰ ἢ ἕτερα, ἢ ἁπλῶς ἢ τὰ πρόχειρα, οἷον καττίτερος ἀργύρῳ ᾗ λευκόν, χρυσὸς δὲ πυρὶ ᾗ ξανθὸν καὶ πυρρόν. ὥστε δῆλον ὅτι καὶ τὸ ἕτερον καὶ τὸ ἀνόμοιον πολλαχῶς λέγεται.

Things are like if, while not being the same without qualification, nor undifferentiated in their composite substance, they are the same in form: the larger square is like the small one, for instance, and unequal straight lines are like each other; these are like, but not the same without qualification. Other things are like if, having the same form, and being things in which more and less can occur, they have it neither more nor less. Others, if they have the same affection, one in form—white, for instance—in a greater and a lesser degree, people call like because their form is one. Others are like if they have more features that are the same than are different, either without qualification or among their obvious features: tin is like silver insofar as it is white, for instance, and

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gold is like fire insofar as it is yellow and flame-colored. So it is clear that "other" and "unlike" are also said in many ways.

καὶ τὸ μὲν ἄλλο ἀντικειμένως καὶ τὸ ταὐτό, διὸ ἅπαν πρὸς ἅπαν ἢ ταὐτὸ ἢ ἄλλο· τὸ δ' ἐὰν μὴ καὶ ἡ ὕλη καὶ ὁ λόγος εἷς, διὸ σὺ καὶ ὁ πλησίον ἕτερος· τὸ δὲ τρίτον ὡς τὰ ἐν τοῖς μαθηματικοῖς. τὸ μὲν οὖν ἕτερον ἢ ταὐτὸ διὰ τοῦτο πᾶν πρὸς πᾶν λέγεται, ὅσα λέγεται ἓν καὶ ὄν· οὐ γὰρ ἀντίφασίς ἐστι τοῦ ταὐτοῦ, διὸ οὐ λέγεται ἐπὶ τῶν μὴ ὄντων (τὸ δὲ μὴ ταὐτὸ λέγεται), ἐπὶ δὲ τῶν ὄντων πάντων· ἢ γὰρ ἓν ἢ οὐχ ἓν πέφυχ' ὅσα ὂν καὶ ἕν. τὸ μὲν οὖν ἕτερον καὶ ταὐτὸν οὕτως ἀντίκειται, διαφορὰ δὲ καὶ ἑτερότης ἄλλο.

In one way, "other" is said in opposition to "the same," which is why everything is either the same as or other than everything else. In another way, things are other unless both their matter and their account are one, which is why you are other than your neighbor. The third way is as with the objects of mathematics. "Other" or "the same," then, is for this reason said of everything in relation to everything—of all things that are said to be one and to be. For "other" is not the contradictory of "the same"; that is why it is not said of things that are not (whereas "not the same" is said of them), but it is said of all things that are. For whatever is a being and one is by nature either one or not one with anything. "Other" and "the same," then, are opposed in this way; but difference is distinct from otherness.

τὸ μὲν γὰρ ἕτερον καὶ οὗ ἕτερον οὐκ ἀνάγκη εἶναι τινὶ ἕτερον· πᾶν γὰρ ἢ ἕτερον ἢ ταὐτὸ ὅ τι ἂν ᾖ ὄν· τὸ δὲ διάφορον τινὸς τινὶ διάφορον, ὥστε ἀνάγκη ταὐτό τι εἶναι ᾧ διαφέρουσιν. τοῦτο δὲ τὸ ταὐτὸ γένος ἢ εἶδος· πᾶν γὰρ τὸ διαφέρον διαφέρει ἢ γένει ἢ εἴδει, γένει μὲν ὧν μὴ ἔστι κοινὴ ἡ ὕλη μηδὲ γένεσις εἰς ἄλληλα, οἷον ὅσων ἄλλο σχῆμα τῆς κατηγορίας, εἴδει δὲ ὧν τὸ αὐτὸ γένος (λέγεται δὲ γένος ὃ ἅμφω τὸ αὐτὸ λέγονται κατὰ τὴν οὐσίαν τὰ διάφορα). τὰ δ' ἐναντία διάφορα, καὶ ἡ ἐναντίωσις διαφορά τις.

For what is other and that from which it is other need not be other in some particular respect, since everything that is, whatever it is, is either other or the same. But what is different is different from something in some respect, so there must be something the same in which they differ. And this same thing is genus or species. For everything that differs differs either in genus or in species: in genus, things that have no common matter and no coming-to-be into each other—for instance, things that belong to different figures of predication; in species, things that have the same genus (and "genus" means that one and the same thing which both of the different things are said to be in respect of their substance). Contraries are different, and contrariety is a kind of difference.

ὅτι δὲ καλῶς τοῦτο ὑποτιθέμεθα, δῆλον ἐκ τῆς ἐπαγωγῆς· πάντα γὰρ διαφέροντα φαίνεται καὶ ταῦτα, οὐ μόνον ἕτερα ὄντα ἀλλὰ τὰ μὲν τὸ γένος ἕτερα τὰ δ' ἐν τῇ αὐτῇ συστοιχίᾳ τῆς κατηγορίας, [1055a] ὥστ' ἐν ταὐτῷ γένει καὶ ταὐτὰ τῷ γένει. διώρισται δ' ἐν ἄλλοις ποῖα τῷ γένει ταὐτὰ ἢ ἕτερα.

That we are right to assume this is clear from induction. For all contraries too turn out to be different, not merely other: some are other in genus, while others fall in the same column of predication, [1055a] and so are in the same genus and the same in genus. Which things are the same or other in genus has been determined elsewhere.

CONTRARIETY AS COMPLETE DIFFERENCE

Contrariety is the greatest, complete difference, so each thing has only one contrary.

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1055a ἐπεὶ δὲ διαφέρειν ἐνδέχεται ἀλλήλων τὰ διαφέροντα πλεῖον καὶ ἔλαττον, ἔστι τις καὶ μεγίστη διαφορά, καὶ ταύτην λέγω ἐναντίωσιν. ὅτι δ' ἡ μεγίστη ἐστὶ διαφορά, δῆλον ἐκ τῆς ἐπαγωγῆς. τὰ μὲν γὰρ γένει διαφέροντα οὐκ ἔχει ὁδὸν εἰς ἄλληλα, ἀλλ' ἀπέχει πλέον καὶ ἀσύμβλητα· τοῖς δ' εἴδει διαφέρουσιν αἱ γενέσεις ἐκ τῶν ἐναντίων εἰσὶν ὡς ἐσχάτων, τὸ δὲ τῶν ἐσχάτων διάστημα μέγιστον, ὥστε καὶ τὸ τῶν ἐναντίων. ἀλλὰ μὴν τό γε μέγιστον ἐν ἑκάστῳ γένει τέλειον.	Since things that differ can differ from each other more and less, there is also a greatest difference, and this I call contrariety. That it is the greatest difference is clear from induction. Things that differ in genus have no path into each other; they are too far apart, and cannot be compared. But for things that differ in species, comings-to-be are from contraries as their extremes, and the distance between extremes is the greatest, so the distance between contraries is the greatest too. And surely what is greatest in each genus is complete.
μέγιστόν τε γὰρ οὗ μὴ ἔστιν ὑπερβολή, καὶ τέλειον οὗ μὴ ἔστιν ἔξω λαβεῖν τι δυνατόν· τέλος γὰρ ἔχει ἡ τελεία διαφορά (ὥσπερ καὶ τἆλλα τῷ τέλος ἔχειν λέγεται τέλεια), τοῦ δὲ τέλους οὐθὲν ἔξω· ἔσχατον γὰρ ἐν παντὶ καὶ περιέχει, διὸ οὐδὲν ἔξω τοῦ τέλους, οὐδὲ προσδεῖται οὐδενὸς τὸ τέλειον. ὅτι μὲν οὖν ἡ ἐναντιότης ἐστὶ διαφορὰ τέλειος, ἐκ τούτων δῆλον· πολλαχῶς δὲ λεγομένων τῶν ἐναντίων, ἀκολουθήσει τὸ τελείως οὕτως ὡς ἂν καὶ τὸ ἐναντίοις εἶναι ὑπάρχῃ αὐτοῖς. τούτων δὲ ὄντων φανερὸν ὅτι οὐκ ἐνδέχεται ἑνὶ πλείω ἐναντία εἶναι (οὔτε γὰρ τοῦ ἐσχάτου ἐσχατώτερον εἴη ἄν τι, οὔτε τοῦ ἑνὸς διαστήματος πλείω δυοῖν ἔσχατα), ὅλως τε εἰ ἔστιν ἡ ἐναντιότης διαφορά, ἡ δὲ διαφορὰ δυοῖν, ὥστε καὶ ἡ τέλειος.	For the greatest is that which cannot be exceeded, and the complete is that beyond which nothing further can be found. The complete difference has reached its end (just as other things are called complete because they have reached their end), and there is nothing beyond the end: in everything the end is the last point and contains the rest, which is why there is nothing beyond the end, and what is complete needs nothing further. From this, then, it is clear that contrariety is complete difference. And since contraries are spoken of in many ways, their being complete will follow in whatever way their being contraries belongs to them. Given this, it is evident that one thing cannot have more than one contrary: nothing could be more extreme than the extreme, and a single interval cannot have more than two extremes. And in general, if contrariety is a difference, and a difference is between two things, so is complete difference.[4]
ἀνάγκη δὲ καὶ τοὺς ἄλλους ὅρους ἀληθεῖς εἶναι τῶν ἐναντίων. καὶ γὰρ πλεῖστον διαφέρει ἡ τέλειος διαφορά (τῶν τε γὰρ γένει διαφερόντων οὐκ ἔστιν ἐξωτέρω λαβεῖν καὶ τῶν εἴδει· δέδεικται γὰρ ὅτι πρὸς τὰ ἔξω τοῦ γένους οὐκ ἔστι διαφορά, τούτων δ' αὕτη μεγίστη), καὶ τὰ ἐν ταὐτῷ γένει πλεῖστον διαφέροντα ἐναντία (μεγίστη γὰρ διαφορὰ τούτων ἡ τέλειος), καὶ τὰ ἐν τῷ αὐτῷ δεκτικῷ πλεῖστον διαφέροντα ἐναντία (ἡ γὰρ ὕλη ἡ αὐτὴ τοῖς ἐναντίοις) καὶ τὰ ὑπὸ τὴν αὐτὴν δύναμιν πλεῖστον διαφέροντα (καὶ γὰρ ἡ ἐπιστήμη περὶ ἓν γένος ἡ μία)· ἐν οἷς ἡ τελεία διαφορὰ μεγίστη.—πρώτη δὲ ἐναντίωσις ἕξις	The other definitions of contraries must also be true. For complete difference differs most (nothing can be found further out than things that differ in genus and in species; for it has been shown that there is no difference in relation to things outside the genus, and among these this is the greatest). Things in the same genus that differ most are contraries (for the complete difference is the greatest difference among these). Things in the same receptive subject that differ most are contraries (for contraries have the same matter). And things that fall under the same capacity and differ

4 "Complete" (*teleios*) is formed from *telos*, "end," which the argument relies on.

GREEK

καὶ στέρησίς ἐστιν· οὐ πᾶσα δὲ στέρησις (πολλαχῶς γὰρ λέγεται ἡ στέρησις) ἀλλ' ἥτις ἂν τελεία ᾖ.

τὰ δ' ἄλλα ἐναντία κατὰ ταῦτα λεχθήσεται, τὰ μὲν τῷ ἔχειν τὰ δὲ τῷ ποιεῖν ἢ ποιητικὰ εἶναι τὰ δὲ τῷ λήψεις εἶναι καὶ ἀποβολαὶ τούτων ἢ ἄλλων ἐναντίων. εἰ δὴ ἀντίκειται μὲν ἀντίφασις καὶ στέρησις καὶ ἐναντιότης καὶ τὰ πρός τι, [1055b] τούτων δὲ πρῶτον ἀντίφασις, ἀντιφάσεως δὲ μηδέν ἐστι μεταξύ, τῶν δὲ ἐναντίων ἐνδέχεται, ὅτι μὲν οὐ ταὐτὸν ἀντίφασις καὶ τἀναντία δῆλον· ἡ δὲ στέρησις ἀντίφασίς τίς ἐστιν· ἢ γὰρ τὸ ἀδύνατον ὅλως ἔχειν, ἢ ὃ ἂν πεφυκὸς ἔχειν μὴ ἔχῃ, ἐστέρηται ἢ ὅλως ἢ πὼς ἀφορισθέν (πολλαχῶς γὰρ ἤδη τοῦτο λέγομεν, ὥσπερ διῄρηται ἡμῖν ἐν ἄλλοις), ὥστ' ἐστὶν ἡ στέρησις ἀντίφασίς τις ἢ ἀδυναμία διορισθεῖσα ἢ συνειλημμένη τῷ δεκτικῷ· διὸ ἀντιφάσεως μὲν οὐκ ἔστι μεταξύ, στερήσεως δέ τινος ἔστιν· ἴσον μὲν γὰρ ἢ οὐκ ἴσον πᾶν, ἴσον δ' ἢ ἄνισον οὐ πᾶν, ἀλλ' εἴπερ, μόνον ἐν τῷ δεκτικῷ τοῦ ἴσου.

[1055b] εἰ δὴ αἱ γενέσεις τῇ ὕλῃ ἐκ τῶν ἐναντίων, γίγνονται δὲ ἢ ἐκ τοῦ εἴδους καὶ τῆς τοῦ εἴδους ἕξεως ἢ ἐκ στερήσεώς τινος τοῦ εἴδους καὶ τῆς μορφῆς, δῆλον ὅτι ἡ μὲν ἐναντίωσις στέρησις ἂν εἴη πᾶσα, ἡ δὲ στέρησις ἴσως οὐ πᾶσα ἐναντιότης (αἴτιον δ' ὅτι πολλαχῶς ἐνδέχεται ἐστερῆσθαι τὸ ἐστερημένον)· ἐξ ὧν γὰρ αἱ μεταβολαὶ ἐσχάτων, ἐναντία ταῦτα. φανερὸν δὲ καὶ διὰ τῆς ἐπαγωγῆς.

πᾶσα γὰρ ἐναντίωσις ἔχει στέρησιν θάτερον τῶν ἐναντίων, ἀλλ' οὐχ ὁμοίως πάντα· ἀνισότης μὲν γὰρ ἰσότητος ἀνομοιότης δὲ ὁμοιότητος κακία δὲ ἀρετῆς, διαφέρει δὲ ὥσπερ εἴρηται· τὸ μὲν γὰρ ἐὰν μόνον ᾖ ἐστερημένον, τὸ δ' ἐὰν ἢ ποτὲ ἢ ἔν τινι, οἷον ἂν ἐν ἡλικίᾳ τινὶ ἢ τῷ κυρίῳ, ἢ πάντῃ· διὸ τῶν μὲν ἔστι μεταξύ, καὶ ἔστιν οὔτε ἀγαθὸς ἄνθρωπος οὔτε κακός, τῶν δὲ οὐκ ἔστιν, ἀλλ' ἀνάγκη εἶναι ἢ περιττὸν ἢ ἄρτιον. ἔτι τὰ μὲν ἔχει τὸ ὑποκείμενον ὡρισμένον, τὰ δ' οὔ. ὥστε φανερὸν ὅτι ἀεὶ θάτερον τῶν ἐναντίων λέγεται κατὰ στέρησιν·

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most are contraries (for one science deals with one genus). In all these the complete difference is the greatest.—The primary contrariety is possession and privation—not every privation (for "privation" is spoken of in many ways), but whichever is complete.

The other contraries will be called so with reference to these: some by having them, some by producing them or being productive of them, some by being acquisitions or losses of these or of other contraries. Now if the kinds of opposition are contradiction, privation, contrariety, and relatives, [1055b] and the first of these is contradiction, and contradiction has no intermediate while contraries can have one, it is clear that contradiction and contraries are not the same. Privation, though, is a kind of contradiction. For what is deprived is either what is wholly incapable of having something, or what would naturally have something but does not have it—either wholly or when specified in some way (we already use this in many senses, as we have distinguished elsewhere). So privation is a kind of contradiction, or an incapacity that is determined or taken together with what receives it. That is why contradiction has no intermediate, while a certain kind of privation does: everything is equal or not equal, but not everything is equal or unequal—only, if anything, what is receptive of equality.

Now if comings-to-be, for matter, are from contraries, and they proceed either from the form and the possession of the form, or from some privation of the form and shape, it is clear that every contrariety would be a privation, while perhaps not every privation is a contrariety (the reason is that what is deprived can be deprived in many ways); for the contraries are the extremes from which changes proceed. This is evident by induction too.

For every contrariety has privation as one of its two contraries, but not all in the same way: inequality is the privation of equality, unlikeness of likeness, badness of excellence. And they differ as has been said. In one case it is enough that the thing be deprived; in another, that it be deprived at some time or in some part—say, at a certain age or in the controlling part—or entirely. That is why some have an intermediate, and a person can be neither good nor bad, while others have none: a number must be either odd or even. Further, some

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ἀπόχρη δὲ κἂν τὰ πρῶτα καὶ τὰ γένη τῶν ἐναντίων, οἷον τὸ ἓν καὶ τὰ πολλά· τὰ γὰρ ἄλλα εἰς ταῦτα ἀνάγεται.	have a determinate underlying subject, others do not. So it is evident that one of two contraries is always spoken of by way of privation. It is enough if this holds of the primary contraries, the genera of contraries, such as the one and the many; for the others are reduced to these.

HOW THE EQUAL IS OPPOSED TO GREAT AND SMALL

The equal is the privative negation of both the great and the small.

GREEK	ENGLISH
ἐπεὶ δὲ ἓν ἑνὶ ἐναντίον, ἀπορήσειεν ἄν τις πῶς ἀντίκειται τὸ ἓν καὶ τὰ πολλά, καὶ τὸ ἴσον τῷ μεγάλῳ καὶ τῷ μικρῷ. εἰ γὰρ τὸ πότερον ἀεὶ ἐν ἀντιθέσει λέγομεν, οἷον πότερον λευκὸν ἢ μέλαν, καὶ πότερον λευκὸν ἢ οὐ λευκόν (πότερον δὲ ἄνθρωπος ἢ λευκὸν οὐ λέγομεν, ἐὰν μὴ ἐξ ὑποθέσεως καὶ ζητοῦντες οἷον πότερον ἦλθε Κλέων ἢ Σωκράτης—ἀλλ᾽ οὐκ ἀνάγκη ἐν οὐδενὶ γένει τοῦτο· ἀλλὰ καὶ τοῦτο ἐκεῖθεν ἐλήλυθεν· τὰ γὰρ ἀντικείμενα μόνα οὐκ ἐνδέχεται ἅμα ὑπάρχειν, ᾧ καὶ ἐνταῦθα χρῆται ἐν τῷ πότερος ἦλθεν· 1056a εἰ γὰρ ἅμα ἐνεδέχετο, γελοῖον τὸ ἐρώτημα· εἰ δέ, καὶ οὕτως ὁμοίως ἐμπίπτει εἰς ἀντίθεσιν, εἰς τὸ ἓν ἢ πολλά, οἷον πότερον ἀμφότεροι ἦλθον ἢ ἄτερος)·—εἰ δὴ ἐν τοῖς ἀντικειμένοις ἀεὶ τοῦ ποτέρου ἡ ζήτησις, λέγεται δὲ πότερον μεῖζον ἢ ἔλαττον ἢ ἴσον, τίς ἐστιν ἡ ἀντίθεσις πρὸς ταῦτα τοῦ ἴσου;	Since one thing has one contrary, one might raise the puzzle of how the one is opposed to the many, and the equal to the great and the small. For we always use "whether" in an antithesis—for instance, "whether it is white or black," or "whether it is white or not white." (We do not ask "whether it is a human or white" except on a presupposition, when inquiring, say, "whether Cleon came or Socrates." But this is not necessary in any genus; even this use has come from the other. For only opposites cannot belong at the same time, and this is what is relied on here too, in asking which of the two came; 1056a for if both could have come at once, the question would be absurd. And if they could, even so it falls into an antithesis in the same way, that of one or many—for instance, "whether both came or one of the two.") If, then, the question "whether" is always about opposites, and we ask "whether it is greater or less or equal," what is the opposition of the equal to these?
1056a οὔτε γὰρ θατέρῳ μόνῳ ἐναντίον οὔτ᾽ ἀμφοῖν· τί γὰρ μᾶλλον τῷ μείζονι ἢ τῷ ἐλάττονι; ἔτι τῷ ἀνίσῳ ἐναντίον τὸ ἴσον, ὥστε πλείοσιν ἔσται ἢ ἑνί. εἰ δὲ τὸ ἄνισον σημαίνει τὸ αὐτὸ ἅμα ἀμφοῖν, εἴη μὲν ἂν ἀντικείμενον ἀμφοῖν (καὶ ἡ ἀπορία βοηθεῖ τοῖς φάσκουσι τὸ ἄνισον δυάδα εἶναι), ἀλλὰ συμβαίνει ἓν δυοῖν ἐναντίον· ὅπερ ἀδύνατον. ἔτι τὸ μὲν ἴσον μεταξὺ φαίνεται μεγάλου καὶ μικροῦ, ἐναντίωσις δὲ μεταξὺ οὐδεμία οὔτε φαίνεται οὔτε ἐκ τοῦ ὁρισμοῦ δυνατόν· οὐ γὰρ ἂν εἴη τελεία μεταξύ τινος οὖσα, ἀλλὰ μᾶλλον ἔχει ἀεὶ ἑαυτῆς τι μεταξύ. λείπεται δὴ ἢ ὡς ἀπόφασιν ἀντικεῖσθαι ἢ ὡς στέρησιν.	It is not contrary to one of them alone, nor to both: why to the greater rather than to the less? Further, the equal is contrary to the unequal, so it will be contrary to more than one thing. But if "unequal" means the same as both together, the equal would be opposed to both (and the puzzle helps those who say that the unequal is a dyad); but then it follows that one thing is contrary to two, which is impossible. Further, the equal appears to be intermediate between great and small, but no contrariety appears to be intermediate, nor can it be, given its definition; for it would not be complete if it were intermediate between some things—rather, it always has something intermediate between its own terms. It remains, then, that it is opposed either as negation or as privation.
θατέρου μὲν δὴ οὐκ ἐνδέχεται (τί γὰρ μᾶλλον τοῦ μεγάλου ἢ μικροῦ;)· ἀμφοῖν ἄρα ἀπόφασις στερητική, διὸ	It cannot be the negation or privation of one of the two (why of the great rather than the small?). It is

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καὶ πρὸς ἀμφότερα τὸ πότερον λέγεται, πρὸς δὲ θάτερον οὔ (οἷον πότερον μεῖζον ἢ ἴσον, ἢ πότερον ἴσον ἢ ἔλαττον), ἀλλ' ἀεὶ τρία. οὐ στέρησις δὲ ἐξ ἀνάγκης· οὐ γὰρ πᾶν ἴσον ὃ μὴ μεῖζον ἢ ἔλαττον, ἀλλ' ἐν οἷς πέφυκεν ἐκεῖνα.—ἔστι δὴ τὸ ἴσον τὸ μήτε μέγα μήτε μικρόν, πεφυκὸς δὲ ἢ μέγα ἢ μικρὸν εἶναι· καὶ ἀντίκειται ἀμφοῖν ὡς ἀπόφασις στερητική, διὸ καὶ μεταξύ ἐστιν. καὶ τὸ μήτε ἀγαθὸν μήτε κακὸν ἀντίκειται ἀμφοῖν, ἀλλ' ἀνώνυμον· πολλαχῶς γὰρ λέγεται ἑκάτερον καὶ οὐκ ἔστιν ἓν τὸ δεκτικόν, ἀλλὰ μᾶλλον τὸ μήτε λευκὸν μήτε μέλαν.

ἓν δὲ οὐδὲ τοῦτο λέγεται, ἀλλ' ὡρισμένα πως ἐφ' ὧν λέγεται στερητικῶς ἡ ἀπόφασις αὕτη· ἀνάγκη γὰρ ἢ φαιὸν ἢ ὠχρὸν εἶναι ἢ τοιοῦτόν τι ἄλλο. ὥστε οὐκ ὀρθῶς ἐπιτιμῶσιν οἱ νομίζοντες ὁμοίως λέγεσθαι πάντα, ὥστε ἔσεσθαι ὑποδήματος καὶ χειρὸς μεταξὺ τὸ μήτε ὑπόδημα μήτε χεῖρα, ἔπειπερ καὶ τὸ μήτε ἀγαθὸν μήτε κακὸν τοῦ ἀγαθοῦ καὶ τοῦ κακοῦ, ὡς πάντων ἐσομένου τινὸς μεταξύ. οὐκ ἀνάγκη δὲ τοῦτο συμβαίνειν. ἡ μὲν γὰρ ἀντικειμένων συναπόφασίς ἐστιν ὧν ἔστι μεταξύ τι καὶ διάστημά τι πέφυκεν εἶναι· 1056b τῶν δ' οὐκ ἔστι διαφορά· ἐν ἄλλῳ γὰρ γένει ὧν αἱ συναποφάσεις, ὥστ' οὐχ ἓν τὸ ὑποκείμενον.

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therefore the privative negation of both. That is why "whether" is said with reference to both, and not to one of them (not, for instance, "whether greater or equal," or "whether equal or less"); there are always three. But it is not a privation of necessity; for not everything that is not greater or less is equal, but only things in which those attributes naturally occur.—The equal, then, is what is neither great nor small but is naturally such as to be great or small; and it is opposed to both as a privative negation, which is why it is also intermediate. And what is neither good nor bad is opposed to both, but it has no name; for each of these is spoken of in many ways, and what receives them is not one thing. What is neither white nor black has a better claim to be one.

Yet even this is not called by one name, though the things of which this negation is said privatively are in a way determinate: it must be gray or pale yellow or something else of that kind. So those critics are wrong who think that all such phrases are used alike, so that there will be something intermediate between a shoe and a hand—what is neither shoe nor hand—since what is neither good nor bad is intermediate between the good and the bad, as though there will be something intermediate between any two things. This need not follow. For the joint negation of opposites applies where there is something intermediate and some natural distance between them; 1056b but between the others there is no difference, since the things jointly denied are in different genera, so that the underlying subject is not one.

HOW THE ONE IS OPPOSED TO THE MANY

The one is opposed to the many as measure to what is measured.

GREEK

1056b ὁμοίως δὲ καὶ περὶ τοῦ ἑνὸς καὶ τῶν πολλῶν ἀπορήσειεν ἄν τις. εἰ γὰρ τὰ πολλὰ τῷ ἑνὶ ἁπλῶς ἀντίκειται, συμβαίνει ἔνια ἀδύνατα. τὸ γὰρ ἓν ὀλίγον ἢ ὀλίγα ἔσται· τὰ γὰρ πολλὰ καὶ τοῖς ὀλίγοις ἀντίκειται. ἔτι τὰ δύο πολλά, εἴπερ τὸ διπλάσιον πολλαπλάσιον λέγεται δὲ κατὰ τὰ δύο· ὥστε τὸ ἓν ὀλίγον· πρὸς τί γὰρ πολλὰ τὰ δύο εἰ μὴ πρὸς ἕν τε καὶ τὸ ὀλίγον; οὐθὲν γάρ ἐστιν ἔλαττον. ἔτι εἰ ὡς ἐν μήκει τὸ μακρὸν καὶ βραχύ, οὕτως ἐν πλήθει τὸ πολὺ καὶ ὀλίγον, καὶ ὃ ἂν ᾖ πολὺ καὶ πολλά, καὶ τὰ πολλὰ πολύ (εἰ μή τι ἄρα διαφέρει ἐν συνεχεῖ εὐορίστῳ), τὸ ὀλίγον πλῆθός τι ἔσται.

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One might raise a similar puzzle about the one and the many. For if the many are opposed to the one without qualification, some impossible consequences follow. The one will be little, or few; for the many are also opposed to the few. Further, two are many, since the double is multiple and "double" is said with reference to two. So one is little: for in relation to what are two many, if not to one and to the little? There is nothing less. Further, if as long and short are in length, so much and little are in plurality, and whatever is much is

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also many, and the many are much (unless perhaps there is some difference in the case of an easily bounded continuum), then the little will be a plurality.[5]

ὥστε τὸ ἓν πλῆθός τι, εἴπερ καὶ ὀλίγον· τοῦτο δ' ἀνάγκη, εἰ τὰ δύο πολλά. ἀλλ' ἴσως τὰ πολλὰ λέγεται μέν πως καὶ [τὸ] πολύ, ἀλλ' ὡς διαφέρον, οἷον ὕδωρ πολύ, πολλὰ δ' οὔ. ἀλλ' ὅσα διαιρετά, ἐν τούτοις λέγεται, ἕνα μὲν τρόπον ἐὰν ᾖ πλῆθος ἔχον ὑπεροχὴν ἢ ἁπλῶς ἢ πρός τι (καὶ τὸ ὀλίγον ὡσαύτως πλῆθος ἔχον ἔλλειψιν), τὸ δὲ ὡς ἀριθμός, ὃ καὶ ἀντίκειται τῷ ἑνὶ μόνον. οὕτως γὰρ λέγομεν ἓν ἢ πολλά, ὥσπερ εἴ τις εἴποι ἓν καὶ ἕνα ἢ λευκὸν καὶ λευκά, καὶ τὰ μεμετρημένα πρὸς τὸ μέτρον [καὶ τὸ μετρητόν]· οὕτως καὶ τὰ πολλαπλάσια λέγεται· πολλὰ γὰρ ἕκαστος ὁ ἀριθμὸς ὅτι ἕνα καὶ ὅτι μετρητὸς ἑνὶ ἕκαστος, καὶ ὡς τὸ ἀντικείμενον τῷ ἑνί, οὐ τῷ ὀλίγῳ.

So the one is a plurality, if it is also little; and this must be so if two are many. But perhaps, though "many" is in a way also said as "much," it is with a difference: water, for instance, is much but not many. Rather, "many" is said of things that are divisible: in one sense, if there is a plurality that has an excess, either without qualification or relative to something (and "little," likewise, is a plurality that has a deficiency); in another sense, as number, and in this sense alone it is opposed to the one. For we say "one or many" as if one were to say "one and ones" or "white and whites," or as measured things are related to their measure; and this is also the sense in which multiples are so called. For each number is many because it consists of ones and because each is measurable by one, and many as what is opposed to the one, not to the little.

οὕτω μὲν οὖν ἐστὶ πολλὰ καὶ τὰ δύο, ὡς δὲ πλῆθος ἔχον ὑπεροχὴν ἢ πρός τι ἢ ἁπλῶς οὐκ ἔστιν, ἀλλὰ πρῶτον. ὀλίγα δ' ἁπλῶς τὰ δύο· πλῆθος γάρ ἐστιν ἔλλειψιν ἔχον πρῶτον (διὸ καὶ οὐκ ὀρθῶς ἀπέστη Ἀναξαγόρας εἰπὼν ὅτι ὁμοῦ πάντα χρήματα ἦν ἄπειρα καὶ πλήθει καὶ μικρότητι, ἔδει δ' εἰπεῖν ἀντὶ τοῦ καὶ μικρότητι καὶ ὀλιγότητι· οὐ γὰρ ἄπειρα), ἐπεὶ τὸ ὀλίγον οὐ διὰ τὸ ἕν, ὥσπερ τινές φασιν, ἀλλὰ διὰ τὰ δύο.—ἀντίκειται δὴ τὸ ἓν καὶ τὰ πολλὰ τὰ ἐν ἀριθμοῖς ὡς μέτρον μετρητῷ· ταῦτα δὲ ὡς τὰ πρός τι, ὅσα μὴ καθ' αὑτὰ τῶν πρός τι.

In this sense, then, even two are many—but not as a plurality that has an excess, either relative or absolute: it is the first plurality. Without qualification, two are few; for it is the first plurality that has a deficiency. (This is why Anaxagoras was wrong to leave the matter where he did, when he said that "all things were together, boundless both in plurality and in smallness"; instead of "in smallness" he should have said "in fewness"—for they are not boundless in that.) For fewness is due not to the one, as some say, but to two.—So the one and the many in numbers are opposed as measure to measurable; and these are opposed as those relatives are that are not relatives in their own right.[6]

διῄρηται δ' ἡμῖν ἐν ἄλλοις ὅτι διχῶς λέγεται τὰ πρός τι, τὰ μὲν ὡς ἐναντία, τὰ δ' ὡς ἐπιστήμη πρὸς ἐπιστητόν, τῷ λέγεσθαί τι ἄλλο πρὸς αὐτό. [1057a] τὸ δὲ ἓν ἔλαττον εἶναι τινός, οἷον τοῖν δυοῖν, οὐδὲν κωλύει· οὐ γάρ, εἰ ἔλαττον, καὶ ὀλίγον. τὸ δὲ πλῆθος οἷον γένος ἐστὶ τοῦ ἀριθμοῦ· ἔστι γὰρ ἀριθμὸς πλῆθος ἑνὶ μετρητόν, καὶ ἀντίκειταί πως τὸ ἓν καὶ ἀριθμός, οὐχ ὡς ἐναντίον ἀλλ' ὥσπερ εἴρηται τῶν πρός τι ἔνια· ᾗ γὰρ μέτρον τὸ δὲ μετρητόν, ταύτῃ ἀντίκειται, διὸ οὐ πᾶν ὃ ἂν ᾖ ἓν ἀριθμός ἐστιν, οἷον εἴ τι

We have distinguished elsewhere that relatives are spoken of in two ways: some as contraries, others as knowledge is related to the knowable, by something else being spoken of in relation to them. [1057a] Nothing prevents one from being less than something, for instance than two; for if it is less, it is not therefore little. Plurality is a sort of genus of number; for number is plurality measurable by one. And one and number are in a way opposed—

5 Greek uses one word pair, *polu/polla* and *oligon/oliga*, for both "much/many" and "little/few," differing only in number.
6 Anaxagoras of Clazomenae (fifth century BC) held that in the beginning all things were mixed together; the quoted words open his book.

GREEK	ENGLISH
ἀδιαίρετόν ἐστιν. ὁμοίως δὲ λεγομένη ἡ ἐπιστήμη πρὸς τὸ ἐπιστητὸν οὐχ ὁμοίως ἀποδίδωσιν.	not as contraries but, as has been said, as some relatives are: they are opposed insofar as one is measure and the other measurable. That is why not everything that is one is a number—for instance, if something is indivisible. But though knowledge is spoken of in the same way in relation to the knowable, the relation does not turn out the same way.
1057a δόξειε μὲν γὰρ ἂν μέτρον ἡ ἐπιστήμη εἶναι τὸ δὲ ἐπιστητὸν τὸ μετρούμενον, συμβαίνει δὲ ἐπιστήμην μὲν πᾶσαν ἐπιστητὸν εἶναι τὸ δὲ ἐπιστητὸν μὴ πᾶν ἐπιστήμην, ὅτι τρόπον τινὰ ἡ ἐπιστήμη μετρεῖται τῷ ἐπιστητῷ. τὸ δὲ πλῆθος οὔτε τῷ ὀλίγῳ ἐναντίον—ἀλλὰ τούτῳ μὲν τὸ πολὺ ὡς ὑπερέχον πλῆθος ὑπερεχομένῳ πλήθει—οὔτε τῷ ἑνὶ πάντως· ἀλλὰ τὸ μὲν ὥσπερ εἴρηται, ὅτι διαιρετὸν τὸ δ’ ἀδιαίρετον, τὸ δ’ ὡς πρός τι ὥσπερ ἡ ἐπιστήμη ἐπιστητῷ, ἐὰν ᾖ ἀριθμὸς τὸ δ’ ἓν μέτρον.	For it might seem that knowledge is the measure and the knowable what is measured; but it turns out that all knowledge is knowable, while not everything knowable is knowledge, because in a way knowledge is measured by the knowable. Plurality is neither contrary to the little—rather, what is contrary to that is much, as a plurality that exceeds is to a plurality that is exceeded—nor in every sense to the one. Rather, they are opposed in one sense, as has been said, because the one is divisible and the other indivisible; in another, as relatives, like knowledge to the knowable, if plurality is number and the one is its measure.

INTERMEDIATES

Intermediates lie in the same genus as their contraries and are composed of them.

GREEK	ENGLISH
ἐπεὶ δὲ τῶν ἐναντίων ἐνδέχεται εἶναί τι μεταξὺ καὶ ἐνίων ἔστιν, ἀνάγκη ἐκ τῶν ἐναντίων εἶναι τὰ μεταξύ. πάντα γὰρ τὰ μεταξὺ ἐν τῷ αὐτῷ γένει ἐστὶ καὶ ὧν ἐστὶ μεταξύ. μεταξὺ μὲν γὰρ ταῦτα λέγομεν εἰς ὅσα μεταβάλλειν ἀνάγκη πρότερον τὸ μεταβάλλον (οἷον ἀπὸ τῆς ὑπάτης ἐπὶ τὴν νήτην εἰ μεταβαίνοι τῷ ὀλιγίστῳ, ἥξει πρότερον εἰς τοὺς μεταξὺ φθόγγους, καὶ ἐν χρώμασιν εἰ [ἥξει] ἐκ τοῦ λευκοῦ εἰς τὸ μέλαν, πρότερον ἥξει εἰς τὸ φοινικοῦν καὶ φαιὸν ἢ εἰς τὸ μέλαν· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων)· μεταβάλλειν δ’ ἐξ ἄλλου γένους εἰς ἄλλο γένος οὐκ ἔστιν ἀλλ’ ἢ κατὰ συμβεβηκός, οἷον ἐκ χρώματος εἰς σχῆμα. ἀνάγκη ἄρα τὰ μεταξὺ καὶ αὐτοῖς καὶ ὧν μεταξύ εἰσιν ἐν τῷ αὐτῷ γένει εἶναι.	Since contraries can have something intermediate, and some do, the intermediates must be composed of the contraries. For all intermediates are in the same genus as the things they are between. We call intermediates the things into which what changes must change first. For instance, if one were to pass from the lowest string to the highest by the smallest steps, one would first come to the intermediate notes; and in colors, if one is to pass from white to black, one will come to crimson and gray before black; and similarly in the other cases. But there is no changing from one genus into another except accidentally—from color to shape, for instance. So intermediates must be in the same genus both as one another and as the things they are between.[7]
ἀλλὰ μὴν πάντα γε τὰ μεταξύ ἐστιν ἀντικειμένων τινῶν· ἐκ τούτων γὰρ μόνων καθ’ αὑτὰ ἔστι μεταβάλλειν (διὸ ἀδύνατον εἶναι μεταξὺ μὴ ἀντικειμένων· εἴη γὰρ ἂν μεταβολὴ καὶ μὴ ἐξ ἀντικειμένων). τῶν δ’ ἀντικειμένων ἀντιφάσεως μὲν οὐκ ἔστι μεταξύ (τοῦτο γάρ ἐστιν	Now all intermediates are between some opposites; for only from these can there be change in its own right (which is why there cannot be an intermediate between things that are not opposites—for there would then be change that was not from

7 The Greek names the *hypatē* and the *nētē*, the lowest- and highest-pitched strings of the lyre.

GREEK

ENGLISH

ἀντίφασις, ἀντίθεσις ἧς ὁτῳοῦν θάτερον μόριον πάρεστιν, οὐκ ἐχούσης οὐθὲν μεταξύ), τῶν δὲ λοιπῶν τὰ μὲν πρός τι τὰ δὲ στέρησις τὰ δὲ ἐναντία ἐστίν. τῶν δὲ πρός τι ὅσα μὴ ἐναντία, οὐκ ἔχει μεταξύ· αἴτιον δ' ὅτι οὐκ ἐν τῷ αὐτῷ γένει ἐστίν. [1057b] τί γὰρ ἐπιστήμης καὶ ἐπιστητοῦ μεταξύ; ἀλλὰ μεγάλου καὶ μικροῦ. εἰ δ' ἐστὶν ἐν ταὐτῷ γένει τὰ μεταξύ, ὥσπερ δέδεικται, καὶ μεταξὺ ἐναντίων, ἀνάγκη αὐτὰ συγκεῖσθαι ἐκ τούτων τῶν ἐναντίων. ἢ γὰρ ἔσται τι γένος αὐτῶν ἢ οὐθέν.

opposites). Of opposites, contradiction has no intermediate (for this is what contradiction is: an antithesis one part or the other of which is present to anything whatever, and which has no intermediate); of the rest, some are relatives, some privations, some contraries. Relatives that are not contraries have no intermediate, and the reason is that they are not in the same genus. [1057b] For what is between knowledge and the knowable? But there is something between great and small. And if intermediates are in the same genus, as has been shown, and between contraries, they must be composed of these contraries. For either there will be a genus that includes them or there will be none.

1057b καὶ εἰ μὲν γένος ἔσται οὕτως ὥστ' εἶναι πρότερόν τι τῶν ἐναντίων, αἱ διαφοραὶ πρότεραι ἐναντίαι ἔσονται αἱ ποιήσουσαι τὰ ἐναντία εἴδη ὡς γένους· ἐκ γὰρ τοῦ γένους καὶ τῶν διαφορῶν τὰ εἴδη (οἷον εἰ τὸ λευκὸν καὶ μέλαν ἐναντία, ἔστι δὲ τὸ μὲν διακριτικὸν χρῶμα τὸ δὲ συγκριτικὸν χρῶμα, αὗται αἱ διαφοραί, τὸ διακριτικὸν καὶ συγκριτικόν, πρότεραι· ὥστε ταῦτα ἐναντία ἀλλήλοις πρότερα).

And if there is a genus in such a way as to be something prior to the contraries, then the differentiae that make the contrary species, as species of a genus, will be contraries prior to them; for species are made up of the genus and the differentiae. (For instance, if white and black are contraries, and one is a piercing color and the other a compressing color, these differentiae—piercing and compressing—are prior; so these, being contrary to each other, are prior.)[8]

ἀλλὰ μὴν τά γε ἐναντίως διαφέροντα μᾶλλον ἐναντίά· καὶ τὰ λοιπὰ καὶ τὰ μεταξὺ ἐκ τοῦ γένους ἔσται καὶ τῶν διαφορῶν (οἷον ὅσα χρώματα τοῦ λευκοῦ καὶ μέλανός ἐστι μεταξύ, ταῦτα δεῖ ἔκ τε τοῦ γένους λέγεσθαι —ἔστι δὲ γένος τὸ χρῶμα—καὶ ἐκ διαφορῶν τινῶν· αὗται δὲ οὐκ ἔσονται τὰ πρῶτα ἐναντία· εἰ δὲ μή, ἔσται ἕκαστον ἢ λευκὸν ἢ μέλαν· ἕτεραι ἄρα· μεταξὺ ἄρα τῶν πρώτων ἐναντίων αὗται ἔσονται, αἱ πρῶται δὲ διαφοραὶ τὸ διακριτικὸν καὶ συγκριτικόν)· ὥστε ταῦτα πρῶτα ζητητέον ὅσα ἐναντία μὴ ἐν γένει, ἐκ τίνος τὰ μεταξὺ αὐτῶν (ἀνάγκη γὰρ τὰ ἐν τῷ αὐτῷ γένει ἐκ τῶν ἀσυνθέτων τῷ γένει συγκεῖσθαι ἢ ἀσύνθετα εἶναι). τὰ μὲν οὖν ἐναντία ἀσύνθετα ἐξ ἀλλήλων, ὥστε ἀρχαί· τὰ δὲ μεταξὺ ἢ πάντα ἢ οὐθέν.

But things that differ contrarily are more truly contraries; and the rest, the intermediates, will be made up of the genus and the differentiae. (For instance, all the colors that are between white and black must be described by the genus—and the genus is color—and by certain differentiae. But these will not be the primary contraries; otherwise each color would be either white or black. So they are different; so they will be intermediate between the primary contraries; and the primary differentiae are piercing and compressing.) So we must first ask, of those contraries that are not in a genus, what their intermediates are composed of (for things in the same genus must either be composed of things not compounded with the genus, or else be uncompounded themselves). Contraries, then, are not compounded from each other, and so they are principles; but the intermediates are either all compounded or none are.

ἐκ δὲ τῶν ἐναντίων γίγνεταί τι, ὥστ' ἔσται μεταβολὴ εἰς τοῦτο πρὶν ἢ εἰς αὐτά· ἑκατέρου γὰρ καὶ ἧττον ἔσται καὶ μᾶλλον. μεταξὺ ἄρα ἔσται καὶ τοῦτο τῶν ἐναντίων. καὶ

But something comes to be from the contraries, so that there will be change to it before there is change to the contraries themselves; for it will be

8 The examples reflect a theory found in Plato's *Timaeus*: white "pierces," or dilates, the ray of vision, and black "compresses" it.

GREEK	ENGLISH
τἆλλα ἄρα πάντα σύνθετα τὰ μεταξύ· τὸ γὰρ τοῦ μὲν μᾶλλον τοῦ δ' ἧττον σύνθετόν πως ἐξ ἐκείνων ὧν λέγεται εἶναι τοῦ μὲν μᾶλλον τοῦ δ' ἧττον. ἐπεὶ δ' οὐκ ἔστιν ἕτερα πρότερα ὁμογενῆ τῶν ἐναντίων, ἅπαντ' ἂν ἐκ τῶν ἐναντίων εἴη τὰ μεταξύ, ὥστε καὶ τὰ κάτω πάντα, καὶ τἀναντία καὶ τὰ μεταξύ, ἐκ τῶν πρώτων ἐναντίων ἔσονται. ὅτι μὲν οὖν τὰ μεταξὺ ἔν τε ταὐτῷ γένει πάντα καὶ μεταξὺ ἐναντίων καὶ σύγκειται ἐκ τῶν ἐναντίων πάντα, δῆλον.	both less and more than each of them. So this too will be intermediate between the contraries. All the other intermediates, then, are composite too; for what is more than one and less than the other is in a way composed of those things of which it is said to be more than one and less than the other. And since there are no other things prior to the contraries and of the same genus, all the intermediates would be composed of the contraries. So all the lower things too, both contraries and intermediates, will be composed of the primary contraries. It is clear, then, that intermediates are all in the same genus, are between contraries, and are all composed of the contraries.

DIFFERENCE IN SPECIES

Things other in species differ by a contrariety within the same genus.

GREEK	ENGLISH
τὸ δ' ἕτερον τῷ εἴδει τινὸς τὶ ἕτερόν ἐστι, καὶ δεῖ τοῦτο ἀμφοῖν ὑπάρχειν· οἷον εἰ ζῷον ἕτερον τῷ εἴδει, ἄμφω ζῷα. ἀνάγκη ἄρα ἐν γένει τῷ αὐτῷ εἶναι τὰ ἕτερα τῷ εἴδει· τὸ γὰρ τοιοῦτο γένος καλῶ ὃ ἄμφω ἓν ταὐτὸ λέγεται, μὴ κατὰ συμβεβηκὸς ἔχον διαφοράν, [1058a] εἴτε ὡς ὕλη ὂν εἴτε ἄλλως. οὐ μόνον γὰρ δεῖ τὸ κοινὸν ὑπάρχειν, οἷον ἄμφω ζῷα, ἀλλὰ καὶ ἕτερον ἑκατέρῳ τοῦτο αὐτὸ τὸ ζῷον, οἷον τὸ μὲν ἵππον τὸ δὲ ἄνθρωπον, διὸ τοῦτο τὸ κοινὸν ἕτερον ἀλλήλων ἐστὶ τῷ εἴδει. ἔσται δὴ καθ' αὑτὰ τὸ μὲν τοιονδὶ ζῷον τὸ δὲ τοιονδί, οἷον τὸ μὲν ἵππος τὸ δ' ἄνθρωπος. ἀνάγκη ἄρα τὴν διαφορὰν ταύτην ἑτερότητα τοῦ γένους εἶναι.	What is other in species is other than something in something, and this must belong to both: for instance, if it is an animal other in species, both are animals. Things other in species, then, must be in the same genus. For by a genus I mean that one and the same thing which both are said to be, and which is differentiated not accidentally, [1058a] whether it is as matter or in some other way. For not only must the common thing belong to both—for instance, both are animals—but this very thing, animal, must also be different for each, for instance a horse in one case and a human in the other; which is why this common thing is other in species in each. In its own right, then, one will be this sort of animal and the other that sort—for instance, one a horse and the other a human. This difference, then, must be an otherness of the genus.
1058a λέγω γὰρ γένους διαφορὰν ἑτερότητα ἢ ἕτερον ποιεῖ τοῦτο αὐτό. ἐναντίωσις τοίνυν ἔσται αὕτη (δῆλον δὲ καὶ ἐκ τῆς ἐπαγωγῆς)· πάντα γὰρ διαιρεῖται τοῖς ἀντικειμένοις, καὶ ὅτι τὰ ἐναντία ἐν ταὐτῷ γένει, δέδεικται· ἡ γὰρ ἐναντιότης ἦν διαφορὰ τελεία, ἡ δὲ διαφορὰ ἡ εἴδει πᾶσα τινὸς τί, ὥστε τοῦτο τὸ αὐτό τε καὶ γένος ἐπ' ἀμφοῖν (διὸ καὶ ἐν τῇ αὐτῇ συστοιχίᾳ πάντα τὰ ἐναντία τῆς κατηγορίας ὅσα εἴδει διάφορα καὶ μὴ γένει, ἕτερά τε ἀλλήλων μάλιστα—τελεία γὰρ ἡ διαφορά—καὶ ἅμα ἀλλήλοις οὐ γίγνεται). ἡ ἄρα διαφορὰ ἐναντίωσίς ἐστιν.	For by a difference of the genus I mean an otherness that makes the genus itself other. This, then, will be a contrariety (and this is clear also from induction). For all things are divided by opposites, and it has been shown that contraries are in the same genus; for contrariety was complete difference, and every difference in species is a difference from something in something, so that this is the same thing and is the genus for both. (That is why all contraries that differ in species and not in genus are in the same column of predication, and are other than each other to the highest degree—

GREEK

ENGLISH

for the difference is complete—and do not come to be together with each other.) The difference, then, is a contrariety.

τοῦτο ἄρα ἐστὶ τὸ ἑτέροις εἶναι τῷ εἴδει, τὸ ἐν ταὐτῷ γένει ὄντα ἐναντίωσιν ἔχειν ἄτομα ὄντα (ταὐτὰ δὲ τῷ εἴδει ὅσα μὴ ἔχει ἐναντίωσιν ἄτομα ὄντα)· ἐν γὰρ τῇ διαιρέσει καὶ ἐν τοῖς μεταξὺ γίγνονται ἐναντιώσεις πρὶν εἰς τὰ ἄτομα ἐλθεῖν· ὥστε φανερὸν ὅτι πρὸς τὸ καλούμενον γένος οὔτε ταὐτὸν οὔτε ἕτερον τῷ εἴδει οὐθέν ἐστι τῶν ὡς γένους εἰδῶν (προσηκόντως· ἡ γὰρ ὕλη ἀποφάσει δηλοῦται, τὸ δὲ γένος ὕλη οὗ λέγεται γένος—μὴ ὡς τὸ τῶν Ἡρακλειδῶν ἀλλ' ὡς τὸ ἐν τῇ φύσει), οὐδὲ πρὸς τὰ μὴ ἐν ταὐτῷ γένει, ἀλλὰ διοίσει τῷ γένει ἐκείνων, εἴδει δὲ τῶν ἐν ταὐτῷ γένει. ἐναντίωσιν γὰρ ἀνάγκη εἶναι τὴν διαφορὰν οὗ διαφέρει εἴδει· αὕτη δὲ ὑπάρχει τοῖς ἐν ταὐτῷ γένει οὖσι μόνοις.

This, then, is what it is to be other in species: to be in the same genus and to have a contrariety, while being indivisible (and things are the same in species if, being indivisible, they have no contrariety). For contrarieties arise in the course of division, in the intermediate steps, before one reaches the indivisibles. So it is evident that, in relation to what is called the genus, none of the species of the genus is either the same or other in species. (And fittingly so: for matter is indicated by negation, and the genus is the matter of that of which it is called the genus—not in the sense in which we speak of the *genos* of the Heraclidae, but as in nature.) Nor are they so in relation to things not in the same genus: they will differ in genus from those, and in species from things in the same genus. For the difference of what differs in species must be a contrariety, and this belongs only to things in the same genus.[9]

WHY MALE AND FEMALE ARE NOT DIFFERENT SPECIES

Contrarieties in the account make species; those in the matter, like sex or color, do not.

GREEK

ENGLISH

ἀπορήσειε δ' ἄν τις διὰ τί γυνὴ ἀνδρὸς οὐκ εἴδει διαφέρει, ἐναντίου τοῦ θήλεος καὶ τοῦ ἄρρενος ὄντος τῆς δὲ διαφορᾶς ἐναντιώσεως, οὐδὲ ζῷον θῆλυ καὶ ἄρρεν ἕτερον τῷ εἴδει· καίτοι καθ' αὑτὸ τοῦ ζῴου αὕτη ἡ διαφορὰ καὶ οὐχ ὡς λευκότης ἢ μελανία ἀλλ' ᾗ ζῷον καὶ τὸ θῆλυ καὶ τὸ ἄρρεν ὑπάρχει. ἔστι δ' ἡ ἀπορία αὕτη σχεδὸν ἡ αὐτὴ καὶ διὰ τί ἡ μὲν ποιεῖ τῷ εἴδει ἕτερα ἐναντίωσις ἡ δ' οὔ, οἷον τὸ πεζὸν καὶ τὸ πτερωτόν, λευκότης δὲ καὶ μελανία οὔ. ἢ ὅτι τὰ μὲν οἰκεῖα πάθη τοῦ γένους τὰ δ' ἧττον;

One might raise the puzzle why a woman does not differ in species from a man, when female and male are contraries and difference is contrariety; nor is a female and a male animal other in species, even though this difference belongs to animal in its own right, and not as whiteness or blackness do—female and male belong to it insofar as it is an animal. This puzzle is almost the same as asking why one contrariety makes things other in species and another does not: footed and winged do, for instance, but whiteness and blackness do not. Is it because some are proper affections of the genus, and others less so?

καὶ ἐπειδή ἐστι τὸ μὲν λόγος τὸ δ' ὕλη, [1058b] ὅσαι μὲν ἐν τῷ λόγῳ εἰσὶν ἐναντιότητες εἴδει ποιοῦσι διαφοράν, ὅσαι δ' ἐν τῷ συνειλημμένῳ τῇ ὕλῃ οὐ ποιοῦσιν. διὸ ἀνθρώπου λευκότης οὐ ποιεῖ οὐδὲ μελανία, οὐδὲ τοῦ λευκοῦ ἀνθρώπου ἔστι διαφορὰ κατ' εἶδος πρὸς μέλανα ἄνθρωπον, οὐδ' ἂν ὄνομα ἓν τεθῇ. ὡς ὕλη γὰρ ὁ ἄνθρωπος, οὐ ποιεῖ δὲ διαφορὰν ἡ ὕλη· οὐδ' ἀνθρώπου

And since there is the account on one side and the matter on the other, [1058b] contrarieties that are in the account make a difference in species, but those in the thing taken together with the matter do not. That is why paleness or darkness in a human does not make one, and there is no difference in species between a pale human and a dark hu-

9 *Genos* means both "genus" and "family" or "clan"; the Heraclidae were the descendants of Heracles.

GREEK	ENGLISH
γὰρ εἴδη εἰσὶν οἱ ἄνθρωποι διὰ τοῦτο, καίτοι ἕτεραι αἱ σάρκες καὶ τὰ ὀστᾶ ἐξ ὧν ὅδε καὶ ὅδε· ἀλλὰ τὸ σύνολον ἕτερον μέν, εἴδει δ' οὐχ ἕτερον, ὅτι ἐν τῷ λόγῳ οὐκ ἔστιν ἐναντίωσις.	man, not even if each were given a single name. For the human here is in the role of matter, and matter does not make a difference; for this reason individual humans are not species of human, even though the flesh and bones of which this human and that human are made are different. The composite is other, but not other in species, because there is no contrariety in the account.
1058b τοῦτο δ' ἐστὶ τὸ ἔσχατον ἄτομον· ὁ δὲ Καλλίας ἐστὶν ὁ λόγος μετὰ τῆς ὕλης· καὶ ὁ λευκὸς δὴ ἄνθρωπος, ὅτι Καλλίας λευκός· κατὰ συμβεβηκὸς οὖν ὁ ἄνθρωπος. οὐδὲ χαλκοῦς δὴ κύκλος καὶ ξύλινος· οὐδὲ τρίγωνον χαλκοῦν καὶ κύκλος ξύλινος, οὐ διὰ τὴν ὕλην εἴδει διαφέρουσιν ἀλλ' ὅτι ἐν τῷ λόγῳ ἔνεστιν ἐναντίωσις. πότερον δ' ἡ ὕλη οὐ ποιεῖ ἕτερα τῷ εἴδει, οὖσά πως ἑτέρα, ἢ ἔστιν ὡς ποιεῖ; διὰ τί γὰρ ὁδὶ ὁ ἵππος τουδὶ ⟨τοῦ⟩ ἀνθρώπου ἕτερος τῷ εἴδει; καίτοι σὺν τῇ ὕλῃ οἱ λόγοι αὐτῶν. ἢ ὅτι ἔνεστιν ἐν τῷ λόγῳ ἐναντίωσις;	And this is the last indivisible; Callias is the account together with the matter. The pale human, then, is so because Callias is pale; so the human is pale accidentally. Nor, then, do a bronze circle and a wooden one differ in species; and if a bronze triangle and a wooden circle differ in species, it is not because of the matter but because there is contrariety in the account. But does matter, since it is in a way other, not make things other in species, or is there a way in which it does? For why is this horse other in species from this human? Yet their accounts include the matter. Is it because there is contrariety in the account?
καὶ γὰρ τοῦ λευκοῦ ἀνθρώπου καὶ μέλανος ἵππου, καὶ ἔστι γε εἴδει, ἀλλ' οὐχ ᾗ ὁ μὲν λευκὸς ὁ δὲ μέλας, ἐπεὶ καὶ εἰ ἄμφω λευκὰ ἦν, ὅμως ἂν ἦν εἴδει ἕτερα. τὸ δὲ ἄρρεν καὶ θῆλυ τοῦ ζῴου οἰκεῖα μὲν πάθη, ἀλλ' οὐ κατὰ τὴν οὐσίαν ἀλλ' ἐν τῇ ὕλῃ καὶ τῷ σώματι, διὸ τὸ αὐτὸ σπέρμα θῆλυ ἢ ἄρρεν γίγνεται παθόν τι πάθος. τί μὲν οὖν ἐστὶ τὸ τῷ εἴδει ἕτερον εἶναι, καὶ διὰ τί τὰ μὲν διαφέρει εἴδει τὰ δ' οὔ, εἴρηται.	For there is contrariety between a pale human and a dark horse too, and they are other in species—but not insofar as one is pale and the other dark, since even if both were pale, they would still be other in species. Male and female are proper affections of animal, but not in virtue of its substance: they are in the matter and the body. That is why the same seed becomes female or male by being affected in a certain way. What it is to be other in species, then, and why some things differ in species and others do not, has been stated.

THE PERISHABLE AND THE IMPERISHABLE

Perishable and imperishable differ in genus, so there cannot be imperishable Forms of perishable things.

GREEK	ENGLISH
ἐπειδὴ δὲ τὰ ἐναντία ἕτερα τῷ εἴδει, τὸ δὲ φθαρτὸν καὶ τὸ ἄφθαρτον ἐναντία (στέρησις γὰρ ἀδυναμία διωρισμένη), ἀνάγκη ἕτερον εἶναι τῷ γένει τὸ φθαρτὸν καὶ τὸ ἄφθαρτον. νῦν μὲν οὖν ἐπ' αὐτῶν εἰρήκαμεν τῶν καθόλου ὀνομάτων, ὥστε δόξειεν ἂν οὐκ ἀναγκαῖον εἶναι ὁτιοῦν ἄφθαρτον καὶ φθαρτὸν ἕτερα εἶναι τῷ εἴδει, ὥσπερ οὐδὲ λευκὸν καὶ μέλαν (τὸ γὰρ αὐτὸ ἐνδέχεται εἶναι, καὶ ἅμα, ἐὰν ᾖ τῶν καθόλου, ὥσπερ ὁ ἄνθρωπος εἴη ἂν καὶ λευκὸς καὶ μέλας, καὶ τῶν καθ' ἕκαστον·	Since contraries are other in species, and the perishable and the imperishable are contraries (for privation is a determinate incapacity), the perishable and the imperishable must be other in genus. So far, though, we have spoken about the universal terms themselves, so it might seem unnecessary for any imperishable thing and any perishable thing to be other in species, just as it is not necessary for white and black (for the same thing can be both, even at the same time, if it is a universal—as "human" could be both pale and dark—and also if it is a particular;

CHAPTER 10

GREEK

εἴη γὰρ ἄν, μὴ ἅμα, ὁ αὐτὸς λευκὸς καὶ μέλας· καίτοι ἐναντίον τὸ λευκὸν τῷ μέλανι)· ἀλλὰ τῶν ἐναντίων τὰ μὲν κατὰ συμβεβηκὸς ὑπάρχει ἐνίοις, οἷον καὶ τὰ νῦν εἰρημένα καὶ ἄλλα πολλά, τὰ δὲ ἀδύνατον, ὧν ἐστὶ καὶ τὸ φθαρτὸν καὶ τὸ ἄφθαρτον· 1059a οὐδὲν γάρ ἐστι φθαρτὸν κατὰ συμβεβηκός· τὸ μὲν γὰρ συμβεβηκὸς ἐνδέχεται μὴ ὑπάρχειν, τὸ δὲ φθαρτὸν τῶν ἐξ ἀνάγκης ὑπαρχόντων ἐστὶν οἷς ὑπάρχει· ἢ ἔσται τὸ αὐτὸ καὶ ἓν φθαρτὸν καὶ ἄφθαρτον, εἰ ἐνδέχεται μὴ ὑπάρχειν αὐτῷ τὸ φθαρτόν.

1059a ἢ τὴν οὐσίαν ἄρα ἢ ἐν τῇ οὐσίᾳ ἀνάγκη ὑπάρχειν τὸ φθαρτὸν ἑκάστῳ τῶν φθαρτῶν. ὁ δ’ αὐτὸς λόγος καὶ περὶ τοῦ ἀφθάρτου· τῶν γὰρ ἐξ ἀνάγκης ὑπαρχόντων ἅμφω. ᾗ ἄρα καὶ καθ’ ὃ πρῶτον τὸ μὲν φθαρτὸν τὸ δ’ ἄφθαρτον, ἔχει ἀντίθεσιν, ὥστε ἀνάγκη γένει ἕτερα εἶναι. φανερὸν τοίνυν ὅτι οὐκ ἐνδέχεται εἶναι εἴδη τοιαῦτα οἷα λέγουσί τινες· ἔσται γὰρ καὶ ἄνθρωπος ὁ μὲν φθαρτὸς ὁ δ’ ἄφθαρτος. καίτοι τῷ εἴδει ταὐτὰ λέγεται εἶναι τὰ εἴδη τοῖς τισὶ καὶ οὐχ ὁμώνυμα· τὰ δὲ γένει ἕτερα πλεῖον διέστηκεν ἢ τὰ εἴδει.

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for the same person could be pale and dark, though not at the same time; and yet pale is contrary to dark). But while some contraries belong to certain things accidentally—both those just mentioned and many others—for others this is impossible, and among these are the perishable and the imperishable. 1059a For nothing is perishable accidentally. What is accidental can fail to belong, whereas perishability is among the attributes that belong of necessity to whatever they belong to. Otherwise one and the same thing will be both perishable and imperishable, if perishability can fail to belong to it.

So perishability must be either the substance or in the substance of each perishable thing. The same argument applies to the imperishable, since both belong of necessity. The features, then, by which and in virtue of which primarily one thing is perishable and the other imperishable are in opposition, so that the two must be other in genus. It is evident, then, that there cannot be Forms of the kind some people speak of; for then there will be one human who is perishable and another who is imperishable. Yet the Forms are said to be the same in species as the individuals, and not merely homonymous; but things other in genus are further apart than things other in species.

Book Kappa (XI)

A summary of earlier discussions; chance and change.

CHAPTER 1

GREEK

ENGLISH

ὅτι μὲν ἡ σοφία περὶ ἀρχὰς ἐπιστήμη τίς ἐστι, δῆλον ἐκ τῶν πρώτων ἐν οἷς διηπόρηται πρὸς τὰ ὑπὸ τῶν ἄλλων εἰρημένα περὶ τῶν ἀρχῶν· ἀπορήσειε δ' ἄν τις πότερον μίαν ὑπολαβεῖν εἶναι δεῖ τὴν σοφίαν ἐπιστήμην ἢ πολλάς· εἰ μὲν γὰρ μίαν, μία γ' ἐστὶν ἀεὶ τῶν ἐναντίων, αἱ δ' ἀρχαὶ οὐκ ἐναντίαι· εἰ δὲ μὴ μία, ποίας δεῖ θεῖναι ταύτας; ἔτι τὰς ἀποδεικτικὰς ἀρχὰς θεωρῆσαι μιᾶς ἢ πλειόνων; εἰ μὲν γὰρ μιᾶς, τί μᾶλλον ταύτης ἢ ὁποιασοῦν; εἰ δὲ πλειόνων, ποίας δεῖ ταύτας τιθέναι; ἔτι πότερον πασῶν τῶν οὐσιῶν ἢ οὔ; εἰ μὲν γὰρ μὴ πασῶν, ποίων χαλεπὸν ἀποδοῦναι· εἰ δὲ πασῶν μία, ἄδηλον πῶς ἐνδέχεται πλειόνων τὴν αὐτὴν ἐπιστήμην εἶναι. ἔτι πότερον περὶ τὰς οὐσίας μόνον ἢ καὶ τὰ συμβεβηκότα [ἀπόδειξίς ἐστιν];

That wisdom is a science concerned with principles is clear from our first discussions, in which we raised puzzles about what others have said about the principles. But one might raise the puzzle whether wisdom should be taken to be one science or many. If one: a single science always deals with contraries, but the principles are not contraries. If not one, what sort of sciences should we take these to be? Further, does it belong to one science or to more to study the principles of demonstration? If to one, why to this one rather than to any other? If to more, what sort of sciences should we take these to be? Further, does it deal with all substances or not? If not all, it is hard to say which; but if one science deals with all, it is unclear how the same science can deal with several things. Further, does it deal only with substances, or also with their accidents?[1]

εἰ γὰρ περί γε τὰ συμβεβηκότα ἀπόδειξίς ἐστιν, περὶ τὰς οὐσίας οὐκ ἔστιν· εἰ δ' ἑτέρα, τίς ἑκατέρα καὶ ποτέρα σοφία; ᾗ μὲν γὰρ ἀποδεικτική, σοφία ἡ περὶ τὰ συμβεβηκότα· ᾗ δὲ περὶ τὰ πρῶτα, ἡ τῶν οὐσιῶν. ἀλλ' οὐδὲ περὶ τὰς ἐν τοῖς φυσικοῖς εἰρημένας αἰτίας τὴν ἐπιζητουμένην ἐπιστήμην θετέον· οὔτε γὰρ περὶ τὸ οὗ ἕνεκεν (τοιοῦτον γὰρ τὸ ἀγαθόν, τοῦτο δ' ἐν τοῖς πρακτοῖς ὑπάρχει καὶ ταῖς οὖσιν ἐν κινήσει· καὶ τοῦτο πρῶτον κινεῖ —τοιοῦτον γὰρ τὸ τέλος—τὸ δὲ πρῶτον κινῆσαν οὐκ ἔστιν ἐν τοῖς ἀκινήτοις)· ὅλως δ' ἀπορίαν ἔχει πότερόν ποτε περὶ τὰς αἰσθητὰς οὐσίας ἐστὶν ἡ ζητουμένη νῦν ἐπιστήμη ἢ οὔ, περὶ δέ τινας ἑτέρας. [1059b] εἰ γὰρ περὶ ἄλλας, ἢ περὶ τὰ εἴδη εἴη ἂν ἢ περὶ τὰ μαθηματικά.

For if there is demonstration about accidents, there is none about substances. But if the sciences are different, what is each, and which of them is wisdom? Insofar as it is demonstrative, wisdom is the science of accidents; insofar as it deals with what is primary, it is the science of substances. Nor, again, should the science we are seeking be taken to deal with the causes discussed in the *Physics*. It does not deal with that for the sake of which: for that is the good, and the good is found among things done and things in motion; and it is the first to move—for the end is of this kind—but what first moves is not found among immovable things. In general, it is a puzzle whether the science now being sought is about perceptible substances or not, but about some others. [1059b] For if about others, it would be about the Forms or about mathematical objects.

1059b τὰ μὲν οὖν εἴδη ὅτι οὐκ ἔστι, δῆλον (ὅμως δὲ ἀπορίαν ἔχει, κἂν εἶναί τις αὐτὰ θῇ, διὰ τί ποτ' οὐχ ὥσπερ ἐπὶ τῶν

Now it is clear that the Forms do not exist. (Still, even if one supposes that they exist, there is a

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μαθηματικῶν, οὕτως ἔχει καὶ ἐπὶ τῶν ἄλλων ὧν ἔστιν εἴδη· λέγω δ' ὅτι τὰ μαθηματικὰ μὲν μεταξύ τε τῶν εἰδῶν τιθέασι καὶ τῶν αἰσθητῶν οἷον τρίτα τινὰ παρὰ τὰ εἴδη τε καὶ τὰ δεῦρο, τρίτος δ' ἄνθρωπος οὐκ ἔστιν οὐδ' ἵππος παρ' αὐτόν τε καὶ τοὺς καθ' ἕκαστον· εἰ δ' αὖ μὴ ἔστιν ὡς λέγουσι, περὶ ποῖα θετέον πραγματεύεσθαι τὸν μαθηματικόν; οὐ γὰρ δὴ περὶ τὰ δεῦρο· τούτων γὰρ οὐθέν ἐστιν οἷον αἱ μαθηματικαὶ ζητοῦσι τῶν ἐπιστημῶν)· οὐδὲ μὴν περὶ τὰ μαθηματικὰ ἡ ζητουμένη νῦν ἐστὶν ἐπιστήμη (χωριστὸν γὰρ αὐτῶν οὐθέν)· ἀλλ' οὐδὲ τῶν αἰσθητῶν οὐσιῶν· φθαρταὶ γάρ.

ὅλως δ' ἀπορήσειέ τις ἂν ποίας ἐστὶν ἐπιστήμης τὸ διαπορῆσαι περὶ τῆς τῶν μαθηματικῶν ὕλης. οὔτε γὰρ τῆς φυσικῆς, διὰ τὸ περὶ τὰ ἔχοντα ἐν αὑτοῖς ἀρχὴν κινήσεως καὶ στάσεως τὴν τοῦ φυσικοῦ πᾶσαν εἶναι πραγματείαν, οὐδὲ μὴν τῆς σκοπούσης περὶ ἀποδείξεώς τε καὶ ἐπιστήμης· περὶ γὰρ αὐτὸ τοῦτο τὸ γένος τὴν ζήτησιν ποιεῖται. λείπεται τοίνυν τὴν προκειμένην φιλοσοφίαν περὶ αὐτῶν τὴν σκέψιν ποιεῖσθαι. διαπορήσειε δ' ἄν τις εἰ δεῖ θεῖναι τὴν ζητουμένην ἐπιστήμην περὶ τὰς ἀρχάς, τὰ καλούμενα ὑπό τινων στοιχεῖα· ταῦτα δὲ πάντες ἐνυπάρχοντα τοῖς συνθέτοις τιθέασιν. μᾶλλον δ' ἂν δόξειε τῶν καθόλου δεῖν εἶναι τὴν ζητουμένην ἐπιστήμην· πᾶς γὰρ λόγος καὶ πᾶσα ἐπιστήμη τῶν καθόλου καὶ οὐ τῶν ἐσχάτων, ὥστ' εἴη ἂν οὕτω τῶν πρώτων γενῶν.

ταῦτα δὲ γίγνοιτ' ἂν τό τε ὂν καὶ τὸ ἕν· ταῦτα γὰρ μάλιστ' ἂν ὑποληφθείη περιέχειν τὰ ὄντα πάντα καὶ μάλιστα ἀρχαῖς ἐοικέναι διὰ τὸ εἶναι πρῶτα τῇ φύσει· φθαρέντων γὰρ αὐτῶν συναναιρεῖται καὶ τὰ λοιπά· πᾶν γὰρ ὂν καὶ ἕν. ᾗ δὲ τὰς διαφορὰς αὐτῶν ἀνάγκη μετέχειν εἰ θήσει τις αὐτὰ γένη, διαφορὰ δ' οὐδεμία τοῦ γένους μετέχει, ταύτῃ δ' οὐκ ἂν δόξειε δεῖν αὐτὰ τιθέναι γένη οὐδ' ἀρχάς. ἔτι δ' εἰ μᾶλλον ἀρχὴ τὸ ἁπλούστερον τοῦ ἧττον τοιούτου, τὰ δ' ἔσχατα τῶν ἐκ τοῦ γένους ἁπλούστερα τῶν γενῶν (ἄτομα γάρ, τὰ γένη δ' εἰς εἴδη πλείω καὶ διαφέροντα διαιρεῖται), μᾶλλον ἂν ἀρχὴ δόξειεν εἶναι τὰ εἴδη τῶν γενῶν.

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puzzle why the same does not hold of the other things of which there are Forms as holds of mathematical objects. I mean that they place mathematical objects between the Forms and perceptible things, as a kind of third set of things beside the Forms and the things here; but there is no third human or horse beside the human itself and the particular ones. If, on the other hand, things are not as they say, what sort of things should we suppose the mathematician deals with? Certainly not the things here; for none of these is the sort of thing the mathematical sciences inquire into.) Nor, then, is the science now being sought about mathematical objects, since none of them is separable. But neither is it about perceptible substances, since they are perishable.

In general, one might raise the puzzle of which science it belongs to to work through the puzzles about the matter of mathematical objects. It does not belong to natural science, because the natural scientist's whole business concerns things that have in themselves a principle of motion and rest; nor to the science that examines demonstration and scientific knowledge, since its inquiry is about precisely that subject. It remains, then, that the philosophy we have set before ourselves conducts the investigation of them. One might also puzzle over whether the science being sought should be taken to be about the principles that some call elements; but everyone takes these to be present in composite things. It might seem, rather, that the science being sought must be of universals; for every account and every science is of universals and not of the lowest things, so that on this view it would be of the primary genera.

These would be being and the one; for these more than anything might be supposed to contain all the things that are, and to be most like principles because they are first by nature: if they are destroyed, the rest are destroyed with them, since everything is and is one. But insofar as their differentiae must share in them if one posits them as genera, while no differentia shares in its genus, in this respect it would seem that one should posit them neither as genera nor as principles. Further, if what is simpler is more a principle than what is less so, and the lowest members of a genus are

1 Much of the first half of Book K goes over ground covered in Books B, Γ and E.

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	simpler than the genera (for they are indivisible, while the genera are divided into many different species), the species would seem to be principles more than the genera.
ᾗ δὲ συναναιρεῖται τοῖς γένεσι τὰ εἴδη, τὰ γένη ταῖς ἀρχαῖς ἔοικε μᾶλλον· ἀρχὴ γὰρ τὸ συναναιροῦν. [1060a] τὰ μὲν οὖν τὴν ἀπορίαν ἔχοντα ταῦτα καὶ τοιαῦτ' ἐστὶν ἕτερα.	But insofar as species are destroyed along with their genera, the genera are more like principles; for a principle is what destroys other things along with itself. [1060a] These, then, and others like them, are the things that raise the puzzle.

MORE PUZZLES ABOUT SEPARATE SUBSTANCE

Is there any substance besides perceptible things, and could its principles be being and the one?

GREEK	ENGLISH
1060a ἔτι πότερον δεῖ τιθέναι τι παρὰ τὰ καθ' ἕκαστα ἢ οὔ, ἀλλὰ τούτων ἡ ζητουμένη ἐπιστήμη; ἀλλὰ ταῦτα ἄπειρα· τά γε μὴν παρὰ τὰ καθ' ἕκαστα γένη ἢ εἴδη ἐστίν, ἀλλ' οὐδετέρου τούτων ἡ ζητουμένη νῦν ἐπιστήμη. διότι γὰρ ἀδύνατον τοῦτο, εἴρηται. καὶ γὰρ ὅλως ἀπορίαν ἔχει πότερον δεῖ τινὰ ὑπολαβεῖν οὐσίαν εἶναι χωριστὴν παρὰ τὰς αἰσθητὰς οὐσίας καὶ τὰς δεῦρο, ἢ οὔ, ἀλλὰ ταῦτ' εἶναι τὰ ὄντα καὶ περὶ ταῦτα τὴν σοφίαν ὑπάρχειν. ζητεῖν μὲν γὰρ ἐοίκαμεν ἄλλην τινά, καὶ τὸ προκείμενον τοῦτ' ἔστιν ἡμῖν, λέγω δὲ τὸ ἰδεῖν εἴ τι χωριστὸν καθ' αὑτὸ καὶ μηδενὶ τῶν αἰσθητῶν ὑπάρχον. ἔτι δ' εἰ παρὰ τὰς αἰσθητὰς οὐσίας ἔστι τις ἑτέρα οὐσία, παρὰ ποίας τῶν αἰσθητῶν δεῖ τιθέναι ταύτην εἶναι;	Further, should we posit something beside particulars or not, and is the science being sought about particulars? But these are infinite. And the things beside particulars are genera or species, but the science now being sought is of neither of these; why this is impossible has been stated. For in general it is a puzzle whether one should suppose that there is some separable substance beside perceptible substances—the ones here—or not, but that these are the things that are, and wisdom is concerned with them. For we seem to be seeking some other substance, and this is the task set before us: I mean, to see whether there is anything separable in its own right and belonging to no perceptible thing. Further, if there is some other substance beside perceptible substances, beside which perceptible substances should we suppose it to exist?
τί γὰρ μᾶλλον παρὰ τοὺς ἀνθρώπους ἢ τοὺς ἵππους ἢ τῶν ἄλλων ζῴων θήσει τις αὐτὴν ἢ καὶ τῶν ἀψύχων ὅλως; τό γε μὴν ἴσας ταῖς αἰσθηταῖς καὶ φθαρταῖς οὐσίαις ἀϊδίους ἑτέρας κατασκευάζειν ἐκτὸς τῶν εὐλόγων δόξειεν ἂν πίπτειν. εἰ δὲ μὴ χωριστὴ τῶν σωμάτων ἡ ζητουμένη νῦν ἀρχή, τίνα ἄν τις ἄλλην θείη μᾶλλον τῆς ὕλης; αὕτη γε μὴν ἐνεργείᾳ μὲν οὐκ ἔστι, δυνάμει δ' ἔστιν. μᾶλλόν τ' ἂν ἀρχὴ κυριωτέρα ταύτης δόξειεν εἶναι τὸ εἶδος καὶ ἡ μορφή· τοῦτο δὲ φθαρτόν, ὥσθ' ὅλως οὐκ ἔστιν ἀΐδιος οὐσία χωριστὴ καὶ καθ' αὑτήν. ἀλλ' ἄτοπον· ἔοικε γὰρ καὶ ζητεῖται σχεδὸν ὑπὸ τῶν χαριεστάτων ὡς οὖσά τις ἀρχὴ καὶ οὐσία τοιαύτη· πῶς γὰρ ἔσται τάξις μή τινος ὄντος ἀϊδίου καὶ χωριστοῦ καὶ μένοντος;	Why should one posit it beside humans or horses rather than beside the other animals, or even beside inanimate things in general? Yet to construct eternal substances, other than and equal in number to the perceptible and perishable ones, would seem to fall outside what is reasonable. But if the principle now being sought is not separable from bodies, what could one posit rather than matter? Yet matter does not exist in actuality, but only in potentiality. Form and shape would seem to be a more authoritative principle than matter; but this is perishable, so that there is no eternal substance at all that is separable and exists in its own right. But that is absurd; for such a principle and substance does seem to exist, and it is sought by nearly all the most refined thinkers as something

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that exists. For how will there be order unless there is something eternal, separable, and lasting?

ἔτι δ' εἴπερ ἔστι τις οὐσία καὶ ἀρχὴ τοιαύτη τὴν φύσιν οἵαν νῦν ζητοῦμεν, καὶ αὕτη μία πάντων καὶ ἡ αὐτὴ τῶν ἀϊδίων τε καὶ φθαρτῶν, ἀπορίαν ἔχει διὰ τί ποτε τῆς αὐτῆς ἀρχῆς οὔσης τὰ μέν ἐστιν ἄΐδια τῶν ὑπὸ τὴν ἀρχὴν τὰ δ' οὐκ ἀΐδια (τοῦτο γὰρ ἄτοπον)· εἰ δ' ἄλλη μέν ἐστιν ἀρχὴ τῶν φθαρτῶν ἄλλη δὲ τῶν ἀϊδίων, εἰ μὲν ἀΐδιος καὶ ἡ τῶν φθαρτῶν, ὁμοίως ἀπορήσομεν (διὰ τί γὰρ οὐκ ἀϊδίου τῆς ἀρχῆς οὔσης καὶ τὰ ὑπὸ τὴν ἀρχὴν ἀΐδια;)· φθαρτῆς δ' οὔσης ἄλλη τις ἀρχὴ γίγνεται ταύτης κἀκείνης ἑτέρα, καὶ τοῦτ' εἰς ἄπειρον πρόεισιν.

Further, if there is a substance and principle of the kind we are now seeking, and this is one for all things and the same for eternal and perishable things, there is a puzzle why, if the principle is the same, some of the things under it are eternal and others not (for this is absurd). But if there is one principle of perishable things and another of eternal ones, then if the principle of perishable things is eternal too, we will face the same puzzle (for why, if the principle is eternal, are the things under it not eternal too?); and if it is perishable, another principle comes to be of it, and another of that, and this goes on to infinity.

εἰ δ' αὖ τις τὰς δοκούσας μάλιστ' ἀρχὰς ἀκινήτους εἶναι, τό τε ὂν καὶ τὸ ἕν, θήσει, πρῶτον μὲν εἰ μὴ τόδε τι καὶ οὐσίαν ἑκάτερον αὐτῶν σημαίνει, [1060b] πῶς ἔσονται χωρισταὶ καὶ καθ' αὑτάς; τοιαύτας δὲ ζητοῦμεν τὰς ἀϊδίους τε καὶ πρώτας ἀρχάς. εἴ γε μὴν τόδε τι καὶ οὐσίαν ἑκάτερον αὐτῶν δηλοῖ, πάντ' ἐστὶν οὐσίαι τὰ ὄντα· κατὰ πάντων γὰρ τὸ ὂν κατηγορεῖται (κατ' ἐνίων δὲ καὶ τὸ ἕν)· οὐσίαν δ' εἶναι πάντα τὰ ὄντα ψεῦδος. ἔτι δὲ τοῖς τὴν πρώτην ἀρχὴν τὸ ἓν λέγουσι καὶ τοῦτ' οὐσίαν, ἐκ δὲ τοῦ ἑνὸς καὶ τῆς ὕλης τὸν ἀριθμὸν γεννῶσι πρῶτον καὶ τοῦτον οὐσίαν φάσκουσιν εἶναι, πῶς ἐνδέχεται τὸ λεγόμενον ἀληθὲς εἶναι;

If, again, one posits being and the one, which seem more than anything to be immovable principles, then first, if neither of them signifies a this and a substance, [1060b] how will they be separable and exist in their own right? Yet it is principles of this kind, eternal and primary, that we are seeking. But if each of them does indicate a this and a substance, all the things that are are substances; for being is predicated of all things (and the one of some), but it is false that all the things that are are substances. Further, those who say that the first principle is the One and that this is substance, and who generate number first from the One and matter and say that it is substance—how can what they say be true?

1060b τὴν γὰρ δυάδα καὶ τῶν λοιπῶν ἕκαστον ἀριθμῶν τῶν συνθέτων πῶς ἓν δεῖ νοῆσαι; περὶ τούτου γὰρ οὔτε λέγουσιν οὐδὲν οὔτε ῥᾴδιον εἰπεῖν. εἴ γε μὴν γραμμὰς ἢ τὰ τούτων ἐχόμενα (λέγω δὲ ἐπιφανείας τὰς πρώτας) θήσει τις ἀρχάς, ταῦτά γ' οὐκ εἰσὶν οὐσίαι χωρισταί, τομαὶ δὲ καὶ διαιρέσεις αἱ μὲν ἐπιφανειῶν αἱ δὲ σωμάτων (αἱ δὲ στιγμαὶ γραμμῶν), ἔτι δὲ πέρατα τῶν αὐτῶν τούτων· πάντα δὲ ταῦτα ἐν ἄλλοις ὑπάρχει καὶ χωριστὸν οὐδέν ἐστιν. ἔτι πῶς οὐσίαν ὑπολαβεῖν εἶναι δεῖ τοῦ ἑνὸς καὶ στιγμῆς; οὐσίας μὲν γὰρ πάσης γένεσις ἔστι, στιγμῆς δ' οὐκ ἔστιν· διαίρεσις γὰρ ἡ στιγμή.

For how are we to think of the dyad, and each of the other composite numbers, as one? On this they say nothing, and it is not easy to say anything. And if one posits lines or what comes after them (I mean the primary surfaces) as principles, these at any rate are not separable substances but sections and divisions—the former of surfaces, the latter of bodies (and points of lines)—and further they are limits of these same things; and all these belong in other things, and none is separable. Further, how are we to suppose that there is a substance of the One and of the point? For of every substance there is coming-to-be, but of a point there is none; for a point is a division.

παρέχει δ' ἀπορίαν καὶ τὸ πᾶσαν μὲν ἐπιστήμην εἶναι τῶν καθόλου καὶ τοῦ τοιουδί, τὴν δ' οὐσίαν μὴ τῶν καθόλου εἶναι, μᾶλλον δὲ τόδε τι καὶ χωριστόν, ὥστ' εἰ περὶ τὰς ἀρχάς ἐστιν ἐπιστήμη, πῶς δεῖ τὴν ἀρχὴν ὑπολαβεῖν οὐσίαν εἶναι; ἔτι πότερον ἔστι τι παρὰ τὸ σύνολον ἢ οὔ

It also raises a puzzle that every science is of universals and of the such-and-such, while substance is not among universals but is rather a this and separable; so if there is a science of the principles, how are we to suppose that the principle is sub-

GREEK	ENGLISH
(λέγω δὲ τὴν ὕλην καὶ τὸ μετὰ ταύτης); εἰ μὲν γὰρ μή, τά γε ἐν ὕλῃ φθαρτὰ πάντα· εἰ δ' ἔστι τι, τὸ εἶδος ἂν εἴη καὶ ἡ μορφή· τοῦτ' οὖν ἐπὶ τίνων ἔστι καὶ ἐπὶ τίνων οὔ, χαλεπὸν ἀφορίσαι· ἐπ' ἐνίων γὰρ δῆλον οὐκ ὂν χωριστὸν τὸ εἶδος, οἷον οἰκίας. ἔτι πότερον αἱ ἀρχαὶ εἴδει ἢ ἀριθμῷ αἱ αὐταί; εἰ γὰρ ἀριθμῷ ἕν, πάντ' ἔσται ταὐτά.	stance? Further, is there anything beside the composite or not (I mean the matter and what goes with it)? If not, everything in matter is perishable; if there is something, it would be the form and shape. But in which cases this exists and in which it does not is hard to determine; for in some cases it is clear that the form is not separable—in the case of a house, for instance. Further, are the principles the same in species or in number? For if they are one in number, all things will be the same.

ONE SCIENCE OF BEING AS BEING

Being is said in many ways but with reference to one thing, so one science studies it.

GREEK	ENGLISH
ἐπεὶ δ' ἐστὶν ἡ τοῦ φιλοσόφου ἐπιστήμη τοῦ ὄντος ᾗ ὂν καθόλου καὶ οὐ κατὰ μέρος, τὸ δ' ὂν πολλαχῶς καὶ οὐ καθ' ἕνα λέγεται τρόπον· εἰ μὲν οὖν ὁμωνύμως κατὰ δὲ κοινὸν μηδέν, οὐκ ἔστιν ὑπὸ μίαν ἐπιστήμην (οὐ γὰρ ἓν γένος τῶν τοιούτων), εἰ δὲ κατά τι κοινόν, εἴη ἂν ὑπὸ μίαν ἐπιστήμην. ἔοικε δὴ τὸν εἰρημένον λέγεσθαι τρόπον καθάπερ τό τε ἰατρικὸν καὶ ὑγιεινόν· καὶ γὰρ τούτων ἑκάτερον πολλαχῶς λέγομεν. [1061a] λέγεται δὲ τοῦτον τὸν τρόπον ἕκαστον τῷ τὸ μὲν πρὸς τὴν ἰατρικὴν ἐπιστήμην ἀνάγεσθαί πως τὸ δὲ πρὸς ὑγίειαν τὸ δ' ἄλλως, πρὸς ταὐτὸ δ' ἕκαστον. ἰατρικὸς γὰρ λόγος καὶ μαχαίριον λέγεται τῷ τὸ μὲν ἀπὸ τῆς ἰατρικῆς ἐπιστήμης εἶναι τὸ δὲ ταύτῃ χρήσιμον.	Since the philosopher's science is of being as being, universally and not with regard to a part, and "being" is said in many ways and not in one: if it is said homonymously and not in virtue of anything common, it does not fall under one science (for there is no one genus of such things); but if in virtue of something common, it would fall under one science. It seems, then, to be said in the way we have described, as "medical" and "healthy" are; for each of these too we say in many ways. [1061a] Each of them is said in this way because one thing is referred in some way to medical science, another to health, another in some other way, but each to the same thing. Both an argument and a scalpel are called medical: the one because it comes from medical science, the other because it is useful to it.
1061a ὁμοίως δὲ καὶ ὑγιεινόν· τὸ μὲν γὰρ ὅτι σημαντικὸν ὑγιείας τὸ δ' ὅτι ποιητικόν. ὁ δ' αὐτὸς τρόπος καὶ ἐπὶ τῶν λοιπῶν. τὸν αὐτὸν δὴ τρόπον καὶ τὸ ὂν ἅπαν λέγεται· τῷ γὰρ τοῦ ὄντος ᾗ ὂν πάθος ἢ ἕξις ἢ διάθεσις ἢ κίνησις ἢ τῶν ἄλλων τι τῶν τοιούτων εἶναι λέγεται ἕκαστον αὐτῶν ὄν. ἐπεὶ δὲ παντὸς τοῦ ὄντος πρὸς ἕν τι καὶ κοινὸν ἡ ἀναγωγὴ γίγνεται, καὶ τῶν ἐναντιώσεων ἑκάστη πρὸς τὰς πρώτας διαφορὰς καὶ ἐναντιώσεις ἀναχθήσεται τοῦ ὄντος, εἴτε πλῆθος καὶ ἓν εἴθ' ὁμοιότης καὶ ἀνομοιότης αἱ πρῶται τοῦ ὄντος εἰσὶ διαφοραί, εἴτ' ἄλλαι τινές· ἔστωσαν γὰρ αὗται τεθεωρημέναι. διαφέρει δ' οὐδὲν τὴν τοῦ ὄντος ἀναγωγὴν πρὸς τὸ ὂν ἢ πρὸς τὸ ἓν γίγνεσθαι.	It is similar with "healthy": one thing is called so because it signifies health, another because it produces it. And the same holds for the rest. It is in this same way that everything that is is called "being": each of these things is called being because it is an affection, or a state, or a disposition, or a motion, or something else of this kind, of being as being. And since everything that is is referred to some one common thing, each of the contrarieties too will be referred to the primary differences and contrarieties of being, whether the primary differences of being are plurality and unity, or likeness and unlikeness, or some others; let these be taken as already studied. It makes no difference whether what is is referred to being or to the one.

GREEK

καὶ γὰρ εἰ μὴ ταὐτὸν ἄλλο δ' ἐστίν, ἀντιστρέφει γε· τό τε γὰρ ἓν καὶ ὄν πως, τό τε ὂν ἕν.—ἐπεὶ δ' ἐστὶ τὰ ἐναντία πάντα τῆς αὐτῆς καὶ μιᾶς ἐπιστήμης θεωρῆσαι, λέγεται δ' ἕκαστον αὐτῶν κατὰ στέρησιν—καίτοι γ' ἔνια ἀπορήσειέ τις ἂν πῶς λέγεται κατὰ στέρησιν, ὧν ἔστιν ἀνὰ μέσον τι, καθάπερ ἀδίκου καὶ δικαίου—περὶ πάντα δὴ τὰ τοιαῦτα τὴν στέρησιν δεῖ τιθέναι μὴ τοῦ ὅλου λόγου, τοῦ τελευταίου δὲ εἴδους· οἷον εἰ ἔστιν ὁ δίκαιος καθ' ἕξιν τινὰ πειθαρχικὸς τοῖς νόμοις, οὐ πάντως ὁ ἄδικος ἔσται τοῦ ὅλου στερούμενος λόγου, περὶ δὲ τὸ πείθεσθαι τοῖς νόμοις ἐκλείπων πῃ, καὶ ταύτῃ ἡ στέρησις ὑπάρξει αὐτῷ·

τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν ἄλλων.—καθάπερ δ' ὁ μαθηματικὸς περὶ τὰ ἐξ ἀφαιρέσεως τὴν θεωρίαν ποιεῖται (περιελὼν γὰρ πάντα τὰ αἰσθητὰ θεωρεῖ, οἷον βάρος καὶ κουφότητα καὶ σκληρότητα καὶ τοὐναντίον, ἔτι δὲ καὶ θερμότητα καὶ ψυχρότητα καὶ τὰς ἄλλας αἰσθητὰς ἐναντιώσεις, μόνον δὲ καταλείπει τὸ ποσὸν καὶ συνεχές, τῶν μὲν ἐφ' ἓν τῶν δ' ἐπὶ δύο τῶν δ' ἐπὶ τρία, καὶ τὰ πάθη τὰ τούτων ᾗ ποσά ἐστι καὶ συνεχῆ, καὶ οὐ καθ' ἕτερόν τι θεωρεῖ, καὶ τῶν μὲν τὰς πρὸς ἄλληλα θέσεις σκοπεῖ καὶ τὰ ταύταις ὑπάρχοντα, [1061b] τῶν δὲ τὰς συμμετρίας καὶ ἀσυμμετρίας, τῶν δὲ τοὺς λόγους, ἀλλ' ὅμως μίαν πάντων καὶ τὴν αὐτὴν τίθεμεν ἐπιστήμην τὴν γεωμετρικήν), τὸν αὐτὸν δὴ τρόπον ἔχει καὶ περὶ τὸ ὄν.

1061b τὰ γὰρ τούτῳ συμβεβηκότα καθ' ὅσον ἐστὶν ὄν, καὶ τὰς ἐναντιώσεις αὐτοῦ ᾗ ὄν, οὐκ ἄλλης ἐπιστήμης ἢ φιλοσοφίας θεωρῆσαι. τῇ φυσικῇ μὲν γὰρ οὐχ ᾗ ὄντα, μᾶλλον δ' ᾗ κινήσεως μετέχει, τὴν θεωρίαν τις ἀπονείμειεν ἄν· ἥ γε μὴν διαλεκτικὴ καὶ ἡ σοφιστικὴ τῶν συμβεβηκότων μέν εἰσι τοῖς οὖσιν, οὐχ ᾗ δ' ὄντα οὐδὲ περὶ τὸ ὂν αὐτὸ καθ' ὅσον ὄν ἐστιν· ὥστε λείπεται τὸν φιλοσόφον, καθ' ὅσον ὄντ' ἐστίν, εἶναι περὶ τὰ λεχθέντα θεωρητικόν.

ἐπεὶ δὲ τό τε ὂν ἅπαν καθ' ἕν τι καὶ κοινὸν λέγεται πολλαχῶς λεγόμενον, καὶ τἀναντία τὸν αὐτὸν τρόπον (εἰς τὰς πρώτας γὰρ ἐναντιώσεις καὶ διαφορὰς τοῦ ὄντος ἀνάγεται), τὰ δὲ τοιαῦτα δυνατὸν ὑπὸ μίαν ἐπιστήμην εἶναι, διαλύοιτ' ἂν ἡ κατ' ἀρχὰς ἀπορία λεχθεῖσα, λέγω δ'

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For even if they are not the same but different, they are at least convertible: what is one is also in a way being, and what is being is one.—Since it belongs to one and the same science to study all contraries, and each of them is spoken of by way of privation—though one might raise a puzzle about some, how they can be spoken of by way of privation, namely those that have something in between, as the unjust and the just do—in all such cases one must take the privation to be not of the whole account but of the last species. For instance, if the just person is one who, by some state, is obedient to the laws, the unjust person will not in every case be deprived of the whole account, but will fall short in some respect in obeying the laws, and the privation will belong to him in this respect;

and similarly in the other cases.—The mathematician studies things that result from abstraction. He studies them after stripping away all perceptible attributes, such as heaviness and lightness, hardness and its contrary, and also heat and cold and the other perceptible contrarieties, and leaves only the quantitative and continuous—some in one dimension, some in two, some in three—and their attributes insofar as they are quantitative and continuous, and does not study them in any other respect. Of some he examines their positions relative to each other and what belongs to these, [1061b] of others their commensurabilities and incommensurabilities, of others their ratios; yet we posit one and the same science of all of them, geometry. It is the same way with being.

For the attributes of being insofar as it is being, and its contrarieties as being, it belongs to no science other than philosophy to study. For one would assign to natural science the study of things not insofar as they are beings but rather insofar as they share in motion; and dialectic and sophistic deal with the accidents of things that are, but not insofar as they are beings, nor with being itself insofar as it is being. So it remains that it is the philosopher who studies the things we have mentioned, insofar as they are beings.

Since everything that is is said in virtue of some one common thing, though it is said in many ways, and contraries are said in the same way (for they are referred to the primary contrarieties and differences of being), and such things can fall un-

GREEK	ENGLISH
ἐν ᾗ διηπορεῖτο πῶς ἔσται πολλῶν καὶ διαφόρων ὄντων τῷ γένει μία τις ἐπιστήμη.	der one science, the puzzle stated at the beginning would be resolved—I mean the one in which we puzzled over how there could be a single science of things that are many and different in genus.

FIRST PHILOSOPHY, MATHEMATICS AND PHYSICS

First philosophy studies the common axioms and being as being; mathematics and physics study parts.

GREEK	ENGLISH
ἐπεὶ δὲ καὶ ὁ μαθηματικὸς χρῆται τοῖς κοινοῖς ἰδίως, καὶ τὰς τούτων ἀρχὰς ἂν εἴη θεωρῆσαι τῆς πρώτης φιλοσοφίας. ὅτι γὰρ ἀπὸ τῶν ἴσων ἴσων ἀφαιρεθέντων ἴσα τὰ λειπόμενα, κοινὸν μέν ἐστιν ἐπὶ πάντων τῶν ποσῶν, ἡ μαθηματικὴ δ' ἀπολαβοῦσα περί τι μέρος τῆς οἰκείας ὕλης ποιεῖται τὴν θεωρίαν, οἷον περὶ γραμμὰς ἢ γωνίας ἢ ἀριθμοὺς ἢ τῶν λοιπῶν τι ποσῶν, οὐχ ᾗ δ' ὄντα ἀλλ' ᾗ συνεχὲς αὐτῶν ἕκαστον ἐφ' ἓν ἢ δύο ἢ τρία· ἡ δὲ φιλοσοφία περὶ τῶν ἐν μέρει μέν, ᾗ τούτων ἑκάστῳ τι συμβέβηκεν, οὐ σκοπεῖ, περὶ τὸ ὂν δέ, ᾗ ὂν τῶν τοιούτων ἕκαστον, θεωρεῖ.	Since the mathematician too uses the common principles in a way specific to his subject, it would also belong to first philosophy to study their principles. That when equals are taken from equals the remainders are equal is common to all quantities; but mathematics marks off some part of its proper matter and studies that—lines, for instance, or angles or numbers or some other kind of quantity —not insofar as they are beings, but insofar as each of them is continuous in one, two, or three dimensions. Philosophy, on the other hand, does not examine particular things insofar as each of them has some attribute; it studies being, insofar as each such thing is a being.
τὸν αὐτὸν δ' ἔχει τρόπον καὶ περὶ τὴν φυσικὴν ἐπιστήμην τῇ μαθηματικῇ· τὰ συμβεβηκότα γὰρ ἡ φυσικὴ καὶ τὰς ἀρχὰς θεωρεῖ τὰς τῶν ὄντων ᾗ κινούμενα καὶ οὐχ ᾗ ὄντα (τὴν δὲ πρώτην εἰρήκαμεν ἐπιστήμην τούτων εἶναι καθ' ὅσον ὄντα τὰ ὑποκείμενά ἐστιν, ἀλλ' οὐχ ᾗ ἕτερόν τι)· διὸ καὶ ταύτην καὶ τὴν μαθηματικὴν ἐπιστήμην μέρη τῆς σοφίας εἶναι θετέον.	Natural science is in the same position as mathematics. Natural science studies the attributes and the principles of the things that are insofar as they are in motion, and not insofar as they are beings (whereas the first science, we have said, deals with these insofar as the underlying subjects are beings, and not insofar as they are something else). That is why both natural science and mathematical science must be taken to be parts of wisdom.

THE PRINCIPLE OF NON-CONTRADICTION

The same thing cannot be and not be at once; it can only be defended against an opponent.

GREEK	ENGLISH
ἔστι δέ τις ἐν τοῖς οὖσιν ἀρχὴ περὶ ἣν οὐκ ἔστι διεψεῦσθαι, τοὐναντίον δὲ ἀναγκαῖον ἀεὶ ποιεῖν, λέγω δὲ ἀληθεύειν, οἷον ὅτι οὐκ ἐνδέχεται τὸ αὐτὸ καθ' ἕνα καὶ τὸν αὐτὸν χρόνον εἶναι καὶ μὴ εἶναι, [1062a] καὶ τἆλλα τὰ τοῦτον αὐτοῖς ἀντικείμενα τὸν τρόπον. καὶ περὶ τῶν τοιούτων ἁπλῶς μὲν οὐκ ἔστιν ἀπόδειξις, πρὸς τόνδε δὲ ἔστιν· οὐ γὰρ ἔστιν ἐκ πιστοτέρας ἀρχῆς αὐτοῦ τούτου ποιήσασθαι συλλογισμόν, δεῖ δέ γ' εἴπερ ἔσται τὸ ἁπλῶς ἀποδεδεῖχθαι.	There is a principle in the things that are about which one cannot be mistaken, but must always do the contrary—I mean, be right: the principle that the same thing cannot at one and the same time be and not be, [1062a] and the others that are opposed to each other in this way. Of such principles there is no demonstration without qualification, but there is one against a particular person. For one cannot construct a deduction of this from a more certain principle than itself; yet one would

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have to, if it is to be demonstrated without qualification.

1062a πρὸς δὲ τὸν λέγοντα τὰς ἀντικειμένας φάσεις τῷ δεικνύντι διότι ψεῦδος ληπτέον τι τοιοῦτον ὃ ταὐτὸ μὲν ἔσται τῷ μὴ ἐνδέχεσθαι ταὐτὸ εἶναι καὶ μὴ εἶναι καθ' ἕνα καὶ τὸν αὐτὸν χρόνον, μὴ δόξει δ' εἶναι ταὐτόν· οὕτω γὰρ μόνως ἂν ἀποδειχθείη πρὸς τὸν φάσκοντα ἐνδέχεσθαι τὰς ἀντικειμένας φάσεις ἀληθεύεσθαι κατὰ τοῦ αὐτοῦ. τοὺς δὴ μέλλοντας ἀλλήλοις λόγου κοινωνήσειν δεῖ τι συνιέναι αὐτῶν· μὴ γιγνομένου γὰρ τούτου πῶς ἔσται κοινωνία τούτοις πρὸς ἀλλήλους λόγου; δεῖ τοίνυν τῶν ὀνομάτων ἕκαστον εἶναι γνώριμον καὶ δηλοῦν τι, καὶ μὴ πολλά, μόνον δὲ ἕν· ἂν δὲ πλείονα σημαίνῃ, φανερὸν ποιεῖν ἐφ' ὃ φέρει τοὔνομα τούτων. ὁ δὴ λέγων εἶναι τοῦτο καὶ μὴ εἶναι, τοῦτο ὅ φησιν οὔ φησιν, ὥσθ' ὃ σημαίνει τοὔνομα τοῦτ' οὐ φησι σημαίνειν· τοῦτο δ' ἀδύνατον.

But against someone who asserts opposite statements, anyone showing why this is false must take something of this kind: something that will be the same as "the same thing cannot be and not be at one and the same time," but will not seem to be the same. For only in this way could it be demonstrated against someone who says that opposite statements can be truly asserted of the same thing. Those who are going to share in discussion with each other must understand each other to some extent; for if this does not happen, how will they share in discussion with each other? Each word, then, must be intelligible and indicate something—not many things, but only one; and if it signifies more than one, one must make clear which of these the word refers to. So whoever says that this is and is not denies what he asserts, and so denies that the word signifies what it signifies; and this is impossible.

ὥστ' εἴπερ σημαίνει τι τὸ εἶναι τόδε, τὴν ἀντίφασιν ἀδύνατον ἀληθεύειν. ἔτι δ' εἴ τι σημαίνει τοὔνομα καὶ τοῦτ' ἀληθεύεται, δεῖ τοῦτ' ἐξ ἀνάγκης εἶναι· τὸ δ' ἐξ ἀνάγκης ὂν οὐκ ἐνδέχεταί ποτε μὴ εἶναι· τὰς ἀντικειμένας ἄρα οὐκ ἐνδέχεται φάσεις καὶ ἀποφάσεις ἀληθεύειν κατὰ τοῦ αὐτοῦ. ἔτι δ' εἰ μηθὲν μᾶλλον ἡ φάσις ἢ ἡ ἀπόφασις ἀληθεύεται, ὁ λέγων ἄνθρωπον ἢ οὐκ ἄνθρωπον οὐθὲν μᾶλλον ἀληθεύσει· δόξειε δὲ κἂν οὐχ ἵππον εἶναι φάσκων τὸν ἄνθρωπον ἢ μᾶλλον ἢ οὐχ ἧττον ἀληθεύειν ἢ οὐκ ἄνθρωπον, ὥστε καὶ ἵππον φάσκων εἶναι τὸν αὐτὸν ἀληθεύσει (τὰς γὰρ ἀντικειμένας ὁμοίως ἦν ἀληθεύειν)· συμβαίνει τοίνυν τὸν αὐτὸν ἄνθρωπον εἶναι καὶ ἵππον ἢ τῶν ἄλλων τι ζῴων.—ἀπόδειξις μὲν οὖν οὐδεμία τούτων ἐστὶν ἁπλῶς, πρὸς μέντοι τὸν ταῦτα τιθέμενον ἀπόδειξις.

So if "to be this" signifies something, it is impossible for the contradiction to be true. Further, if a word signifies something and this is truly asserted, it must be so of necessity; and what is of necessity cannot ever not be; so opposite affirmations and negations cannot be true of the same thing. Further, if the affirmation is no more true than the negation, whoever calls something a human will be no more right than whoever calls it not a human. It would seem, too, that whoever says the human is not a horse would be either more right, or no less right, than whoever says he is not a human; so whoever says he is a horse will also be right (for opposite statements were equally true). It follows, then, that the same being is a human and a horse, or some other animal.—There is, then, no demonstration of these principles without qualification, but there is a demonstration against the person who holds these views.

ταχέως δ' ἄν τις καὶ αὐτὸν τὸν Ἡράκλειτον τοῦτον ἐρωτῶν τὸν τρόπον ἠνάγκασεν ὁμολογεῖν μηδέποτε τὰς ἀντικειμένας φάσεις δυνατὸν εἶναι κατὰ τῶν αὐτῶν ἀληθεύεσθαι· νῦν δ' οὐ συνιεὶς ἑαυτοῦ τί ποτε λέγει, ταύτην ἔλαβε τὴν δόξαν. ὅλως δ' εἰ τὸ λεγόμενον ὑπ' αὐτοῦ ἐστὶν ἀληθές, οὐδ' ἂν αὐτὸ τοῦτο εἴη ἀληθές, [1062b] λέγω δὲ τὸ ἐνδέχεσθαι τὸ αὐτὸ καθ' ἕνα καὶ τὸν αὐτὸν χρόνον εἶναί τε καὶ μὴ εἶναι· καθάπερ γὰρ καὶ διῃρημένων αὐτῶν οὐδὲν μᾶλλον ἡ κατάφασις ἢ ἡ

By questioning him in this way, one could quickly have compelled even Heraclitus himself to agree that opposite statements can never be true of the same things; as it is, he adopted this opinion without understanding what he himself was saying. And in general, if what he says is true, not even this itself would be true, [1062b] I mean that the same thing can at one and the same time both be and not be. For just as, when they are separated,

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ἀπόφασις ἀληθεύεται, τὸν αὐτὸν τρόπον καὶ τοῦ συναμφοτέρου καὶ τοῦ συμπεπλεγμένου καθάπερ μιᾶς τινὸς καταφάσεως οὔσης οὐθὲν μᾶλλον ⟨ἢ⟩ ἡ ἀπόφασις [ἢ] τὸ ὅλον ὡς ἐν καταφάσει τιθέμενον ἀληθεύσεται.	the affirmation is no more true than the negation, in the same way, when the two are combined and woven together as though into a single affirmation, the whole, posited as an affirmation, will be no more true than its negation.
1062b ἔτι δ' εἰ μηθὲν ἔστιν ἀληθῶς καταφῆσαι, κἂν αὐτὸ τοῦτο ψεῦδος εἴη τὸ φάναι μηδεμίαν ἀληθῆ κατάφασιν ὑπάρχειν. εἰ δ' ἔστι τι, λύοιτ' ἂν τὸ λεγόμενον ὑπὸ τῶν τὰ τοιαῦτα ἐνισταμένων καὶ παντελῶς ἀναιρούντων τὸ διαλέγεσθαι.	Further, if nothing can be truly affirmed, then this itself would be false: the claim that there is no true affirmation. But if there is some true affirmation, then what is said by those who raise such objections and do away with discussion altogether would be refuted.

PROTAGORAS AND THE APPEARANCES

The view that each appearance is true comes from natural philosophy and from disagreements in perception.

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παραπλήσιον δὲ τοῖς εἰρημένοις ἐστὶ καὶ τὸ λεχθὲν ὑπὸ τοῦ Πρωταγόρου· καὶ γὰρ ἐκεῖνος ἔφη πάντων εἶναι χρημάτων μέτρον ἄνθρωπον, οὐδὲν ἕτερον λέγων ἢ τὸ δοκοῦν ἑκάστῳ τοῦτο καὶ εἶναι παγίως· τούτου δὲ γιγνομένου τὸ αὐτὸ συμβαίνει καὶ εἶναι καὶ μὴ εἶναι, καὶ κακὸν καὶ ἀγαθὸν εἶναι, καὶ τἆλλα τὰ κατὰ τὰς ἀντικειμένας λεγόμενα φάσεις, διὰ τὸ πολλάκις τοισδὶ μὲν φαίνεσθαι τόδε εἶναι καλὸν τοισδὶ δὲ τοὐναντίον, μέτρον δ' εἶναι τὸ φαινόμενον ἑκάστῳ. λύοιτο δ' ἂν αὕτη ἡ ἀπορία θεωρήσασι πόθεν ἐλήλυθεν ἡ ἀρχὴ τῆς ὑπολήψεως ταύτης· ἔοικε γὰρ ἐνίοις μὲν ἐκ τῆς τῶν φυσιολόγων δόξης γεγενῆσθαι, τοῖς δ' ἐκ τοῦ μὴ ταὐτὰ περὶ τῶν αὐτῶν ἅπαντας γιγνώσκειν ἀλλὰ τοῖσδε μὲν ἡδὺ τόδε φαίνεσθαι τοῖσδε δὲ τοὐναντίον.	Close to what has been said is the saying of Protagoras as well. For he said that a human being is the measure of all things, meaning nothing other than that what seems so to each person also firmly is so. But if this is so, it follows that the same thing both is and is not, and is bad and good, and so with everything else expressed in opposite statements, since often a given thing appears beautiful to these people and the contrary to those, and what appears to each is the measure. This puzzle would be resolved if one considered where this belief took its start. It seems to have arisen for some from the opinion of the natural philosophers, and for others from the fact that not everyone judges the same things in the same way, but a given thing seems pleasant to these people and the contrary to those.
τὸ γὰρ μηδὲν ἐκ μὴ ὄντος γίγνεσθαι, πᾶν δ' ἐξ ὄντος, σχεδὸν ἁπάντων ἐστὶ κοινὸν δόγμα τῶν περὶ φύσεως· ἐπεὶ οὖν οὐ λευκὸν γίγνεται λευκοῦ τελέως ὄντος καὶ οὐδαμῇ μὴ λευκοῦ [νῦν δὲ γεγενημένον μὴ λευκόν], γίγνοιτ' ἂν ἐκ μὴ ὄντος λευκοῦ τὸ γιγνόμενον [μὴ] λευκόν· ὥστε ἐκ μὴ ὄντος γίγνοιτ' ἂν κατ' ἐκείνους, εἰ μὴ ὑπῆρχε λευκὸν τὸ αὐτὸ καὶ μὴ λευκόν. οὐ χαλεπὸν δὲ διαλύειν τὴν ἀπορίαν ταύτην· εἴρηται γὰρ ἐν τοῖς φυσικοῖς πῶς ἐκ τοῦ μὴ ὄντος γίγνεται τὰ γιγνόμενα καὶ πῶς ἐξ ὄντος. τό γε μὴν ὁμοίως προσέχειν ταῖς δόξαις καὶ ταῖς φαντασίαις τῶν πρὸς αὐτοὺς διαμφισβητούντων εὔηθες· δῆλον γὰρ ὅτι τοὺς ἑτέρους αὐτῶν ἀνάγκη διεψεῦσθαι.	For that nothing comes to be from what is not, but everything from what is, is a doctrine common to nearly all who have written about nature. Since, then, a thing does not become white if it was already perfectly white and in no way not white, what becomes white would come to be from what is not white; so on their view it would come to be from what is not, unless the same thing was white and not white to begin with. But it is not hard to resolve this puzzle; for it has been stated in the *Physics* how things that come to be come to be from what is not, and how from what is. And to pay equal attention to the opinions and impressions of people who disagree with each other is simple-minded; for clearly one side or the other must be mistaken.

GREEK

φανερὸν δὲ τοῦτ' ἐκ τῶν γιγνομένων κατὰ τὴν αἴσθησιν· οὐδέποτε γὰρ τὸ αὐτὸ φαίνεται τοῖς μὲν γλυκὺ τοῖς δὲ τοὐναντίον, [1063a] μὴ διεφθαρμένων καὶ λελωβημένων τῶν ἑτέρων τὸ αἰσθητήριον καὶ κριτήριον τῶν λεχθέντων χυμῶν. τούτου δ' ὄντος τοιούτου τοὺς ἑτέρους μὲν ὑποληπτέον μέτρον εἶναι τοὺς δ' ἄλλους οὐχ ὑποληπτέον. ὁμοίως δὲ τοῦτο λέγω καὶ ἐπὶ ἀγαθοῦ καὶ κακοῦ, καὶ καλοῦ καὶ αἰσχροῦ, καὶ τῶν ἄλλων τῶν τοιούτων. οὐδὲν γὰρ διαφέρει τοῦτ' ἀξιοῦν ἢ τὰ φαινόμενα τοῖς ὑπὸ τὴν ὄψιν ὑποβάλλουσι τὸν δάκτυλον καὶ ποιοῦσιν ἐκ τοῦ ἑνὸς φαίνεσθαι δύο, δύο δεῖν εἶναι διὰ τὸ φαίνεσθαι τοσαῦτα, καὶ πάλιν ἕν· τοῖς γὰρ μὴ κινοῦσι τὴν ὄψιν ἓν φαίνεται τὸ ἕν.

1063a ὅλως δὲ ἄτοπον ἐκ τοῦ φαίνεσθαι τὰ δεῦρο μεταβάλλοντα καὶ μηδέποτε διαμένοντα ἐν τοῖς αὐτοῖς, ἐκ τούτου περὶ τῆς ἀληθείας τὴν κρίσιν ποιεῖσθαι· δεῖ γὰρ ἐκ τῶν ἀεὶ κατὰ ταὐτὰ ἐχόντων καὶ μηδεμίαν μεταβολὴν ποιουμένων τἀληθὲς θηρεύειν, τοιαῦτα δ' ἐστὶ τὰ κατὰ τὸν κόσμον· ταῦτα γὰρ οὐχ ὁτὲ μὲν τοιαδὶ πάλιν δ' ἀλλοῖα φαίνεται, ταὐτὰ δ' ἀεὶ καὶ μεταβολῆς οὐδεμιᾶς κοινωνοῦντα. ἔτι δ' εἰ κίνησις ἔστι, καὶ κινούμενόν τι, κινεῖται δὲ πᾶν ἔκ τινος καὶ εἴς τι· δεῖ ἄρα τὸ κινούμενον εἶναι ἐν ἐκείνῳ ἐξ οὗ κινήσεται καὶ οὐκ εἶναι ἐν αὐτῷ, καὶ εἰς τοδὶ κινεῖσθαι καὶ γίγνεσθαι ἐν τούτῳ, τὸ δὲ κατὰ τὴν ἀντίφασιν μὴ συναληθεύεσθαι κατ' αὐτούς.

καὶ εἰ κατὰ τὸ ποσὸν συνεχῶς τὰ δεῦρο ῥεῖ καὶ κινεῖται, καί τις τοῦτο θείη καίπερ οὐκ ἀληθὲς ὄν, διὰ τί κατὰ τὸ ποιὸν οὐ μενεῖ; φαίνονται γὰρ οὐχ ἥκιστα τὰ κατὰ τὰς ἀντιφάσεις ταὐτοῦ κατηγορεῖν ἐκ τοῦ τὸ ποσὸν ὑπειληφέναι μὴ μένειν ἐπὶ τῶν σωμάτων, διὸ καὶ εἶναι τετράπηχυ τὸ αὐτὸ καὶ οὐκ εἶναι. ἡ δ' οὐσία κατὰ τὸ ποιόν, τοῦτο δὲ τῆς ὡρισμένης φύσεως, τὸ δὲ ποσὸν τῆς ἀορίστου. ἔτι διὰ τί προστάττοντος τοῦ ἰατροῦ τοδὶ τὸ σιτίον προσενέγκασθαι προσφέρονται; τί γὰρ μᾶλλον τοῦτο ἄρτος ἐστὶν ἢ οὐκ ἔστιν;

ὥστ' οὐθὲν ἂν διέχοι φαγεῖν ἢ μὴ φαγεῖν· νῦν δ' ὡς ἀληθεύοντες περὶ αὐτὸ καὶ ὄντος τοῦ προσταχθέντος σιτίου τούτου προσφέρονται τοῦτο· καίτοι γ' οὐκ ἔδει μὴ διαμενούσης παγίως μηδεμιᾶς φύσεως ἐν τοῖς αἰσθητοῖς ἀλλ' ἀεὶ πασῶν κινουμένων καὶ ῥεουσῶν. ἔτι δ' εἰ μὲν

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This is evident from what happens in perception. For the same thing never appears sweet to some and the contrary to others [1063a] unless in one of the two groups the sense organ that discerns the flavors in question has been damaged or impaired. That being so, one group must be taken as the measure and the other not. I say the same about good and bad, beautiful and ugly, and all other such things. For to claim this is no different from claiming that what appears to people who press a finger under the eye and make one thing look like two must be two, because it appears to be that many—and again one; for to those who do not move their eye, the one thing appears one.

In general, it is absurd to base our judgment about the truth on the fact that the things here appear to change and never remain in the same state. For one must hunt for the truth on the basis of things that are always in the same state and undergo no change; and such are the things in the heavens. For these do not appear one way at one time and different at another, but are always the same and share in no change. Further, if there is motion, there is also something moved, and everything is moved from something and into something. So what is moved must be in that from which it will be moved and also not be in it, and must be moved into this and come to be in it; but the contradictory statements are not true together, as they claim.

And if the things here are continuously in flux and motion with respect to quantity—suppose one grants this, though it is not true—why should they not remain constant with respect to quality? For it seems to be not least because they have assumed that quantity does not remain constant in bodies that they predicate contradictories of the same thing, and say that the same thing both is and is not four cubits long. But substance goes with quality, and this belongs to a determinate nature, whereas quantity belongs to the indeterminate. Further, why, when the doctor prescribes that they take this particular food, do they take it? For why is this bread rather than not bread?

So it would make no difference whether they ate or did not eat. As it is, they take it as if they were right about it, and as if this were the food prescribed. Yet they ought not to, if no nature remained firmly constant among perceptible things,

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ἀλλοιούμεθα ἀεὶ καὶ μηδέποτε διαμένομεν οἱ αὐτοί, τί καὶ θαυμαστὸν εἰ μηδέποθ' ἡμῖν ταὐτὰ φαίνεται καθάπερ τοῖς κάμνουσιν [1063b] (καὶ γὰρ τούτοις διὰ τὸ μὴ ὁμοίως διακεῖσθαι τὴν ἕξιν καὶ ὅθ' ὑγίαινον, οὐχ ὅμοια φαίνεται τὰ κατὰ τὰς αἰσθήσεις, αὐτὰ μὲν οὐδεμιᾶς διά γε τοῦτο μεταβολῆς κοινωνοῦντα τὰ αἰσθητά, αἰσθήματα δ' ἕτερα ποιοῦντα τοῖς κάμνουσι καὶ μὴ τὰ αὐτά· τὸν αὐτὸν δὴ τρόπον ἔχειν καὶ τῆς εἰρημένης μεταβολῆς γιγνομένης ἴσως ἀναγκαῖόν ἐστιν);

but all were always in motion and flux. Further, if we are always being altered and never remain the same, what wonder is it if things never appear the same to us, as to the sick? [1063b] (For to them too, because their condition is not the same as when they were healthy, the objects of perception do not appear alike—not that the perceptible things themselves share in any change on this account, but they produce different sensations in the sick, and not the same ones. And it is perhaps necessary that it is the same way if the change we mentioned takes place.)

1063b εἰ δὲ μὴ μεταβάλλομεν ἀλλ' οἱ αὐτοὶ διατελοῦμεν ὄντες, εἴη ἄν τι μένον.—πρὸς μὲν οὖν τοὺς ἐκ λόγου τὰς εἰρημένας ἀπορίας ἔχοντας οὐ ῥᾴδιον διαλῦσαι μὴ τιθέντων τι καὶ τούτου μηκέτι λόγον ἀπαιτούντων· οὕτω γὰρ πᾶς λόγος καὶ πᾶσα ἀπόδειξις γίγνεται· μηθὲν γὰρ τιθέντες ἀναιροῦσι τὸ διαλέγεσθαι καὶ ὅλως λόγον,—ὥστε πρὸς μὲν τοὺς τοιούτους οὐκ ἔστι λόγος, πρὸς δὲ τοὺς διαποροῦντας ἐκ τῶν παραδεδομένων ἀποριῶν ῥᾴδιον ἀπαντᾶν καὶ διαλύειν τὰ ποιοῦντα τὴν ἀπορίαν ἐν αὐτοῖς· δῆλον δ' ἐκ τῶν εἰρημένων. ὥστε φανερὸν ἐκ τούτων. ὅτι οὐκ ἐνδέχεται τὰς ἀντικειμένας φάσεις περὶ τοῦ αὐτοῦ καθ' ἕνα χρόνον ἀληθεύειν, οὐδὲ τὰ ἐναντία, διὰ τὸ λέγεσθαι κατὰ στέρησιν πᾶσαν ἐναντιότητα· δῆλον δὲ τοῦτ' ἐπ' ἀρχὴν τοὺς λόγους ἀναλύουσι τοὺς τῶν ἐναντίων.

But if we do not change but go on being the same, there would be something that remains.—Now against those who hold the puzzles described on the basis of argument, it is not easy to resolve them unless they posit something and no longer demand an argument for it; for this is how every argument and every demonstration comes about. By positing nothing they do away with discussion, and with argument altogether. So against such people there is no argument; but against those who are perplexed because of the puzzles handed down, it is easy to respond and to remove what produces the puzzle in them. This is clear from what has been said. So it is evident from this that opposite statements cannot be true of the same thing at one time, nor can contraries, since every contrariety is spoken of by way of privation. This is clear if one analyzes the accounts of contraries back to their principle.

ὁμοίως δ' οὐδὲ τῶν ἀνὰ μέσον οὐδὲν οἷόν τε κατηγορεῖσθαι καθ' ἑνὸς καὶ τοῦ αὐτοῦ· λευκοῦ γὰρ ὄντος τοῦ ὑποκειμένου λέγοντες αὐτὸ εἶναι οὔτε μέλαν οὔτε λευκὸν ψευσόμεθα· συμβαίνει γὰρ εἶναι λευκὸν αὐτὸ καὶ μὴ εἶναι· θάτερον γὰρ τῶν συμπεπλεγμένων ἀληθεύσεται κατ' αὐτοῦ, τοῦτο δ' ἐστὶν ἀντίφασις τοῦ λευκοῦ. οὔτε δὴ καθ' Ἡράκλειτον ἐνδέχεται λέγοντας ἀληθεύειν, οὔτε κατ' Ἀναξαγόραν· εἰ δὲ μή, συμβήσεται τἀναντία τοῦ αὐτοῦ κατηγορεῖν· ὅταν γὰρ ἐν παντὶ φῇ παντὸς εἶναι μοῖραν, οὐδὲν μᾶλλον εἶναί φησι γλυκὺ ἢ πικρὸν ἢ τῶν λοιπῶν ὁποιανοῦν ἐναντιώσεων, εἴπερ ἐν ἅπαντι πᾶν ὑπάρχει μὴ δυνάμει μόνον ἀλλ' ἐνεργείᾳ ι ικαὶ ἀποκεκριμένον.

Similarly, none of the intermediates can be predicated of one and the same thing. For if the subject is white, we will speak falsely if we say that it is neither black nor white; for it follows that it is white and is not white. For one of the two combined terms will be true of it, and this is the contradictory of white. So one cannot speak truly either on Heraclitus' view or on Anaxagoras'; otherwise it will follow that contraries are predicated of the same thing. For when Anaxagoras says that in everything there is a portion of everything, he is saying that it is no more sweet than bitter, or any other of the contrarieties whatever, if everything is present in everything not only potentially but in actuality and separated out.

ὁμοίως δὲ οὐδὲ πάσας ψευδεῖς οὐδ' ἀληθεῖς τὰς φάσεις δυνατὸν εἶναι, δι' ἄλλα τε πολλὰ τῶν συναχθέντων ἂν δυσχερῶν διὰ ταύτην τὴν θέσιν, καὶ διότι ψευδῶν μὲν

Similarly, it is not possible for all statements to be false, nor for all to be true—both because of the many other difficulties that this thesis would

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οὐσῶν πασῶν οὐδ' αὐτὸ τοῦτό τις φάσκων ἀληθεύσει, ἀληθῶν δὲ ψευδεῖς εἶναι πάσας λέγων οὐ ψεύσεται.	bring with it, and because if all are false, not even someone who says so will be right, while if all are true, someone who says they are all false will not be speaking falsely.

THE THREE THEORETICAL SCIENCES

Physics, mathematics and theology are the theoretical sciences, and theology, about separate unmovable substance, is highest.

GREEK	ENGLISH
πᾶσα δ' ἐπιστήμη ζητεῖ τινὰς ἀρχὰς καὶ αἰτίας περὶ ἕκαστον τῶν ὑφ' αὑτὴν ἐπιστητῶν,	Every science seeks certain principles and causes for each of the knowable things that fall under it—
1064a οἷον ἰατρικὴ καὶ γυμναστικὴ καὶ τῶν λοιπῶν ἑκάστη τῶν ποιητικῶν καὶ μαθηματικῶν. ἑκάστη γὰρ τούτων περιγραψαμένη τι γένος αὑτῇ περὶ τοῦτο πραγματεύεται ὡς ὑπάρχον καὶ ὄν, οὐχ ᾗ δὲ ὄν, ἀλλ' ἑτέρα τις αὕτη παρὰ ταύτας τὰς ἐπιστήμας ἐστὶν ἐπιστήμη. τῶν δὲ λεχθεισῶν ἐπιστημῶν ἑκάστη λαβοῦσά πως τὸ τί ἐστιν ἐν ἑκάστῳ γένει πειρᾶται δεικνύναι τὰ λοιπὰ μαλακώτερον ἢ ἀκριβέστερον. λαμβάνουσι δὲ τὸ τί ἐστιν αἱ μὲν δι' αἰσθήσεως αἱ δ' ὑποτιθέμεναι· διὸ καὶ δῆλον ἐκ τῆς τοιαύτης ἐπαγωγῆς ὅτι τῆς οὐσίας καὶ τοῦ τί ἐστιν οὐκ ἔστιν ἀπόδειξις. ἐπεὶ δ' ἔστι τις ἡ περὶ φύσεως ἐπιστήμη, δῆλον ὅτι καὶ πρακτικῆς ἑτέρα καὶ ποιητικῆς ἔσται.	1064a medicine and gymnastics, for instance, and each of the other sciences, productive and mathematical. For each of these marks off some genus for itself and deals with it as something that exists and is, but not insofar as it is; that is the concern of another science beside these. Each of the sciences mentioned grasps in some way the what-it-is in each genus, and tries to demonstrate the rest more loosely or more precisely. Some grasp the what-it-is through perception, others by hypothesis; which is also why it is clear from such an induction that there is no demonstration of substance and of the what-it-is. And since there is a science of nature, it is clear that it will be different both from a practical science and from a productive one.
1064a ποιητικῆς μὲν γὰρ ἐν τῷ ποιοῦντι καὶ οὐ τῷ ποιουμένῳ τῆς κινήσεως ἡ ἀρχή, καὶ τοῦτ' ἔστιν εἴτε τέχνη τις εἴτ' ἄλλη τις δύναμις· ὁμοίως δὲ καὶ τῆς πρακτικῆς οὐκ ἐν τῷ πρακτῷ μᾶλλον δ' ἐν τοῖς πράττουσιν ἡ κίνησις. ἡ δὲ τοῦ φυσικοῦ περὶ τὰ ἔχοντ' ἐν ἑαυτοῖς κινήσεως ἀρχήν ἐστιν. ὅτι μὲν τοίνυν οὔτε πρακτικὴν οὔτε ποιητικὴν ἀλλὰ θεωρητικὴν ἀναγκαῖον εἶναι τὴν φυσικὴν ἐπιστήμην, δῆλον ἐκ τούτων (εἰς ἓν γάρ τι τούτων τῶν γενῶν ἀνάγκη πίπτειν)· ἐπεὶ δὲ τὸ τί ἐστιν ἀναγκαῖον ἑκάστῃ πως τῶν ἐπιστημῶν εἰδέναι καὶ τούτῳ χρῆσθαι ἀρχῇ, δεῖ μὴ λανθάνειν πῶς ὁριστέον τῷ φυσικῷ καὶ πῶς ὁ τῆς οὐσίας λόγος ληπτέος, πότερον ὡς τὸ σιμὸν ἢ μᾶλλον ὡς τὸ κοῖλον.	For in a productive science the principle of motion is in the producer and not in the thing produced, and this is either a craft or some other capacity; and similarly in a practical science the motion is not in the thing done but rather in the doers. But the science of the natural scientist deals with things that have in themselves a principle of motion. From this it is clear that natural science must be neither practical nor productive but theoretical (for it must fall into one of these kinds). And since each of the sciences must in some way know the what-it-is and use it as a principle, we must not overlook how the natural scientist should define, and how the account of the substance is to be taken—whether like the snub, or rather like the concave.
τούτων γὰρ ὁ μὲν τοῦ σιμοῦ λόγος μετὰ τῆς ὕλης λέγεται τῆς τοῦ πράγματος, ὁ δὲ τοῦ κοίλου χωρὶς τῆς ὕλης· ἡ γὰρ σιμότης ἐν ῥινί γίγνεται, διὸ καὶ ὁ λόγος αὐτῆς μετὰ ταύτης θεωρεῖται· τὸ σιμὸν γάρ ἐστι ῥὶς κοίλη. φανερὸν οὖν ὅτι καὶ σαρκὸς καὶ ὀφθαλμοῦ καὶ τῶν λοιπῶν μορίων μετὰ τῆς ὕλης ἀεὶ τὸν λόγον ἀποδοτέον. ἐπεὶ δ' ἔστι τις	Of these, the account of the snub is stated together with the matter of the thing, while that of the concave is stated without the matter. For snubness occurs in a nose, which is why its account too is considered together with the nose: the snub is a concave nose. It is evident, then, that the account of

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ἐπιστήμη τοῦ ὄντος ᾗ ὂν καὶ χωριστόν, σκεπτέον πότερόν ποτε τῇ φυσικῇ ι ιτὴν αὐτὴν θετέον εἶναι ταύτην ἢ μᾶλλον ἑτέραν. ἡ μὲν οὖν φυσικὴ περὶ τὰ κινήσεως ἔχοντ' ἀρχὴν ἐν αὑτοῖς ἐστίν, ἡ δὲ μαθηματικὴ θεωρητικὴ μὲν καὶ περὶ μένοντά τις αὕτη, ἀλλ' οὐ χωριστά.

περὶ τὸ χωριστὸν ἄρα ὂν καὶ ἀκίνητον ἑτέρα τούτων ἀμφοτέρων τῶν ἐπιστημῶν ἔστι τις, εἴπερ ὑπάρχει τις οὐσία τοιαύτη, λέγω δὲ χωριστὴ καὶ ἀκίνητος, ὅπερ πειρασόμεθα δεικνύναι. καὶ εἴπερ ἔστι τις τοιαύτη φύσις ἐν τοῖς οὖσιν, ἐνταῦθ' ἂν εἴη που καὶ τὸ θεῖον, καὶ αὕτη ἂν εἴη πρώτη καὶ κυριωτάτη ἀρχή. [1064b] δῆλον τοίνυν ὅτι τρία γένη τῶν θεωρητικῶν ἐπιστημῶν ἔστι, φυσική, μαθηματική, θεολογική. βέλτιστον μὲν οὖν τὸ τῶν θεωρητικῶν γένος, τούτων δ' αὐτῶν ἡ τελευταία λεχθεῖσα· περὶ τὸ τιμιώτατον γάρ ἐστι τῶν ὄντων, βελτίων δὲ καὶ χείρων ἑκάστη λέγεται κατὰ τὸ οἰκεῖον ἐπιστητόν. ἀπορήσειε δ' ἄν τις πότερόν ποτε τὴν τοῦ ὄντος ᾗ ὂν ἐπιστήμην καθόλου δεῖ θεῖναι ἢ οὔ.

1064b τῶν μὲν γὰρ μαθηματικῶν ἑκάστη περὶ ἕν τι γένος ἀφωρισμένον ἐστίν, ἡ δὲ καθόλου κοινὴ περὶ πάντων. εἰ μὲν οὖν αἱ φυσικαὶ οὐσίαι πρῶται τῶν ὄντων εἰσί, κἂν ἡ φυσικὴ πρώτη τῶν ἐπιστημῶν εἴη· εἰ δ' ἔστιν ἑτέρα φύσις καὶ οὐσία χωριστὴ καὶ ἀκίνητος, ἑτέραν ἀνάγκη καὶ τὴν ἐπιστήμην αὐτῆς εἶναι καὶ προτέραν τῆς φυσικῆς καὶ καθόλου τῷ προτέραν.

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flesh, of the eye, and of the other parts must always be given together with the matter. Since there is a science of being as being and as separable, we must consider whether this should be taken to be the same as natural science or rather different. Natural science deals with things that have a principle of motion in themselves; mathematics is theoretical and concerned with things that remain, but not with separable ones.

About being that is separable and immovable, then, there is a science different from both of these, if there is a substance of this kind—I mean, separable and immovable—which we shall try to show. And if there is such a nature among the things that are, this is where the divine would be found, and this would be the first and most authoritative principle. [1064b] It is clear, then, that there are three kinds of theoretical science: natural science, mathematics, and theology. The kind made up of theoretical sciences is the best, and among these the last mentioned is best; for it deals with the most honorable of the things that are, and each science is called better or worse according to its own object of knowledge. One might raise the puzzle whether the science of being as being should be taken to be universal or not.

For each of the mathematical sciences deals with some one determinate genus, while the universal one is common to all. Now if natural substances are the first of the things that are, natural science would also be the first of the sciences; but if there is another nature and substance, separable and immovable, the science of it must also be different, and prior to natural science, and universal by being prior.

THE ACCIDENTAL AND LUCK

There is no science of the accidental; luck is an accidental cause among things done for a purpose.

GREEK

ἐπεὶ δὲ τὸ ἁπλῶς ὂν κατὰ πλείους λέγεται τρόπους, ὧν εἷς ἐστὶν ὁ κατὰ συμβεβηκὸς εἶναι λεγόμενος, σκεπτέον πρῶτον περὶ τοῦ οὕτως ὄντος. ὅτι μὲν οὖν οὐδεμία τῶν παραδεδομένων ἐπιστημῶν πραγματεύεται περὶ τὸ συμβεβηκός, δῆλον (οὔτε γὰρ οἰκοδομικὴ σκοπεῖ τὸ συμβησόμενον τοῖς τῇ οἰκίᾳ χρησομένοις, οἷον εἰ λυπηρῶς ἢ τοὐναντίον οἰκήσουσιν, οὔθ' ὑφαντικὴ οὔτε σκυτοτομικὴ οὔτε ὀψοποιική, τὸ δὲ καθ' αὑτὴν ἴδιον ἑκάστη τούτων σκοπεῖ τῶν ἐπιστημῶν μόνον, τοῦτο δ'

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Since being without qualification is said in several ways, one of which is being said to be accidentally, we must first consider being of this kind. That none of the traditional sciences deals with the accidental is clear. (Housebuilding does not consider what will happen to those who will use the house —whether they will live in it unhappily, for instance, or the reverse—nor do weaving, shoemaking, or cookery; each of these sciences considers

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ἐστὶ τὸ οἰκεῖον τέλος· [οὐδὲ μουσικὸν καὶ γραμματικόν,] οὐδὲ τὸν ὄντα μουσικὸν ὅτι γενόμενος γραμματικὸς ἅμα ἔσται τὰ ἀμφότερα, πρότερον οὐκ ὤν, ὃ δὲ μὴ ἀεὶ ὂν ἔστιν, ἐγένετο τοῦτο, ὥσθ' ἅμα μουσικὸς ἐγένετο καὶ γραμματικός,—τοῦτο δὲ οὐδεμία ζητεῖ τῶν ὁμολογουμένως οὐσῶν ἐπιστημῶν πλὴν ἡ σοφιστική· περὶ τὸ συμβεβηκὸς γὰρ αὕτη μόνη πραγματεύεται, διὸ Πλάτων οὐ κακῶς εἴρηκε φήσας τὸν σοφιστὴν περὶ τὸ μὴ ὂν διατρίβειν)· ὅτι δ' οὐδ' ἐνδεχόμενόν ἐστιν εἶναι τοῦ συμβεβηκότος ἐπιστήμην, φανερὸν ἔσται πειραθεῖσιν ἰδεῖν τί ποτ' ἐστὶ τὸ συμβεβηκός.

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only what is proper to it in its own right, and this is its own end. Nor does any of them consider the fact that someone who is musical, on becoming literate, will be both at once, not having been so before—and what is, but not always, has come to be—so that he became musical and literate at once. None of the sciences agreed to be sciences seeks this except sophistic; for it alone deals with the accidental, which is why Plato was not wrong to say that the sophist spends his time on what is not.) That there cannot even be a science of the accidental will be evident if we try to see what the accidental actually is.[2]

πᾶν δή φαμεν εἶναι τὸ μὲν ἀεὶ καὶ ἐξ ἀνάγκης (ἀνάγκης δ' οὐ τῆς κατὰ τὸ βίαιον λεγομένης ἀλλ' ᾗ χρώμεθα ἐν τοῖς κατὰ τὰς ἀποδείξεις), τὸ δ' ὡς ἐπὶ τὸ πολύ, τὸ δ' οὔθ' ὡς ἐπὶ τὸ πολὺ οὔτ' ἀεὶ καὶ ἐξ ἀνάγκης ἀλλ' ὅπως ἔτυχεν· οἷον ἐπὶ κυνὶ γένοιτ' ἂν ψῦχος, ἀλλὰ τοῦτ' οὔτ' [ὡς] ἀεὶ καὶ ἐξ ἀνάγκης οὔθ' ὡς ἐπὶ τὸ πολὺ γίγνεται, συμβαίη δέ ποτ' ἄν. 1065a ἔστι δὴ τὸ συμβεβηκὸς ὃ γίγνεται μέν, οὐκ ἀεὶ δ' οὐδ' ἐξ ἀνάγκης οὐδ' ὡς ἐπὶ τὸ πολύ. τί μὲν οὖν ἐστὶ τὸ συμβεβηκός, εἴρηται, διότι δ' οὐκ ἔστιν ἐπιστήμη τοῦ τοιούτου, δῆλον· ἐπιστήμη μὲν γὰρ πᾶσα τοῦ ἀεὶ ὄντος ἢ ὡς ἐπὶ τὸ πολύ, τὸ δὲ συμβεβηκὸς ἐν οὐδετέρῳ τούτων ἐστίν.

Of everything, we say that some of it is always and of necessity (necessity not in the sense of force, but the kind we rely on in demonstrations), some is for the most part, and some is neither for the most part nor always and of necessity, but as it happens. For instance, there might be cold in the dog days, but this happens neither always and of necessity nor for the most part, though it might happen at some time. 1065a The accidental, then, is what happens, but not always or of necessity or for the most part. What the accidental is has now been stated, and why there is no science of such a thing is clear: every science is of what is always or for the most part, and the accidental is in neither of these.

1065a ὅτι δὲ τοῦ κατὰ συμβεβηκὸς ὄντος οὐκ εἰσὶν αἰτίαι καὶ ἀρχαὶ τοιαῦται οἵαίπερ τοῦ καθ' αὑτὸ ὄντος, δῆλον· ἔσται γὰρ ἅπαντ' ἐξ ἀνάγκης. εἰ γὰρ τόδε μὲν ἔστι τοῦδε ὄντος τόδε δὲ τοῦδε, τοῦτο δὲ μὴ ὅπως ἔτυχεν ἀλλ' ἐξ ἀνάγκης, ἐξ ἀνάγκης ἔσται καὶ οὗ τοῦτ' ἦν αἴτιον ἕως τοῦ τελευταίου λεγομένου αἰτιατοῦ (τοῦτο δ' ἦν κατὰ συμβεβηκός), ὥστ' ἐξ ἀνάγκης ἅπαντ' ἔσται, καὶ τὸ ὁποτέρως ἔτυχε καὶ τὸ ἐνδέχεσθαι καὶ γενέσθαι καὶ μὴ παντελῶς ἐκ τῶν γιγνομένων ἀναιρεῖται. κἂν μὴ ὂν δὲ ἀλλὰ γιγνόμενον τὸ αἴτιον ὑποτεθῇ, ταὐτὰ συμβήσεται· πᾶν γὰρ ἐξ ἀνάγκης γενήσεται.

That accidental being does not have causes and principles of the same kind as being in its own right is clear; for then everything would be of necessity. For if this is when that is, and that when something else is, and this not as it happens but of necessity, then what that was the cause of will also be of necessity, down to the last thing said to be caused (but this was supposed to be accidental). So everything will be of necessity, and chance—things turning out either way—and the possibility both of coming to be and of not coming to be are removed entirely from events. And if the cause is supposed to be not something that is but something coming to be, the same results will follow; for everything will come to be of necessity.

ἡ γὰρ αὔριον ἔκλειψις γενήσεται ἂν τόδε γένηται, τοῦτο δ' ἐὰν ἕτερόν τι, καὶ τοῦτ' ἂν ἄλλο· καὶ τοῦτον δὴ τὸν τρόπον ἀπὸ πεπερασμένου χρόνου τοῦ ἀπὸ τοῦ νῦν μέχρι αὔριον ἀφαιρουμένου χρόνου ἥξει ποτὲ εἰς τὸ ὑπάρχον,

For tomorrow's eclipse will happen if this happens, and this if something else does, and that if yet another thing does; and in this way, as time is subtracted from the limited time between now

2 The reference is to Plato's dialogue *Sophist*.

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ὥστ' ἐπεὶ τοῦτ' ἔστιν, ἅπαντ' ἐξ ἀνάγκης τὰ μετὰ τοῦτο γενήσεται, ὥστε πάντα ἐξ ἀνάγκης γίγνεσθαι.

and tomorrow, one will eventually come to what exists already. So since this exists, everything after it will happen of necessity, so that everything happens of necessity.

τὸ δ' ὡς ἀληθὲς ὂν καὶ κατὰ συμβεβηκὸς τὸ μέν ἐστιν ἐν συμπλοκῇ διανοίας καὶ πάθος ἐν ταύτῃ (διὸ περὶ μὲν τὸ οὕτως ὂν οὐ ζητοῦνται αἱ ἀρχαί, περὶ δὲ τὸ ἔξω ὂν καὶ χωριστόν)· τὸ δ' οὐκ ἀναγκαῖον ἀλλ' ἀόριστον, λέγω δὲ τὸ κατὰ συμβεβηκός· τοῦ τοιούτου δ' ἄτακτα καὶ ἄπειρα τὰ αἴτια.—τὸ δὲ ἕνεκά του ἐν τοῖς φύσει γιγνομένοις ἢ ἀπὸ διανοίας ἐστίν, τύχη δέ ἐστιν ὅταν τι τούτων γένηται κατὰ συμβεβηκός· ὥσπερ γὰρ καὶ ὄν ἐστι τὸ μὲν καθ' αὑτὸ τὸ δὲ κατὰ συμβεβηκός, οὕτω καὶ αἴτιον. ἡ τύχη δ' αἰτία κατὰ συμβεβηκὸς ἐν τοῖς κατὰ προαίρεσιν τῶν ἕνεκά του γιγνομένοις, διὸ περὶ ταὐτὰ τύχη καὶ διάνοια· προαίρεσις γὰρ οὐ χωρὶς διανοίας.

As for being in the sense of the true and being accidentally: the former lies in a combination in thought and is an affection of thought (which is why it is not the principles of being in this sense that are sought, but those of being that is outside and separable); the latter is not necessary but indeterminate—I mean the accidental—and the causes of such a thing are unordered and infinite. —That for the sake of which is found in things that come to be by nature or from thought; and it is luck when one of these comes about accidentally. For just as some being is in its own right and some accidental, so too with cause. Luck is an accidental cause in things that come to be for the sake of something in accordance with decision. That is why luck and thought concern the same things; for there is no decision without thought.

τὰ δ' αἴτια ἀόριστα ἀφ' ὧν ἂν γένοιτο τὰ ἀπὸ τύχης, διὸ ἄδηλος ἀνθρωπίνῳ λογισμῷ καὶ αἴτιον κατὰ συμβεβηκός, ἁπλῶς δ' οὐδενός. ἀγαθὴ δὲ τύχη καὶ κακὴ ὅταν ἀγαθὸν ἢ φαῦλον ἀποβῇ· εὐτυχία δὲ καὶ δυστυχία περὶ μέγεθος τούτων. 1065b ἐπεὶ δ' οὐθὲν κατὰ συμβεβηκὸς πρότερον τῶν καθ' αὑτό, οὐδ' ἄρ' αἴτια· εἰ ἄρα τύχη ἢ τὸ αὐτόματον αἴτιον τοῦ οὐρανοῦ, πρότερον νοῦς αἴτιος καὶ φύσις.

The causes from which lucky results might come about are indeterminate. That is why luck is obscure to human reasoning, and is a cause accidentally, but without qualification a cause of nothing. Luck is good or bad when the outcome is good or bad; good fortune and misfortune concern these on a large scale. 1065b Since nothing accidental is prior to what is in its own right, neither are accidental causes prior. If, then, luck or spontaneity is a cause of the heavens, intellect and nature are prior causes.

WHAT MOTION IS

Motion is the actuality of what is potential, insofar as it is potential.

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1065b ἔστι δὲ τὸ μὲν ἐνεργείᾳ μόνον τὸ δὲ δυνάμει τὸ δὲ δυνάμει καὶ ἐνεργείᾳ, τὸ μὲν ὂν τὸ δὲ ποσὸν τὸ δὲ τῶν λοιπῶν. οὐκ ἔστι δέ τις κίνησις παρὰ τὰ πράγματα· μεταβάλλει γὰρ ἀεὶ κατὰ τὰς τοῦ ὄντος κατηγορίας, κοινὸν δ' ἐπὶ τούτων οὐδέν ἐστιν ὃ οὐδ' ἐν μιᾷ κατηγορίᾳ. ἕκαστον δὲ διχῶς ὑπάρχει πᾶσιν (οἷον τὸ τόδε—τὸ μὲν γὰρ μορφὴ αὐτοῦ τὸ δὲ στέρησις—καὶ κατὰ τὸ ποιὸν τὸ μὲν λευκὸν τὸ δὲ μέλαν, καὶ κατὰ τὸ ποσὸν τὸ μὲν τέλειον τὸ δὲ ἀτελές, καὶ κατὰ φορὰν τὸ μὲν ἄνω τὸ δὲ κάτω, ἢ κοῦφον καὶ βαρύ)· ὥστε κινήσεως καὶ μεταβολῆς τοσαῦτ' εἴδη ὅσα τοῦ ὄντος.

Some things are in actuality only, some in potentiality, and some both in potentiality and in actuality—some as beings, some as quantities, and some in the other categories. There is no motion apart from things; for what changes always changes according to the categories of being, and there is nothing common to these that is not in one category. Each belongs to everything in two ways—for instance, the this: one is its form, the other its privation; with respect to quality, white and black; with respect to quantity, complete and incomplete; with respect to locomotion, up and

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διῃρημένου δὲ καθ' ἕκαστον γένος τοῦ μὲν δυνάμει τοῦ δ' ἐντελεχείᾳ, τὴν τοῦ δυνάμει ᾗ τοιοῦτόν ἐστιν ἐνέργειαν λέγω κίνησιν. ὅτι δ' ἀληθῆ λέγομεν, ἐνθένδε δῆλον· ὅταν γὰρ τὸ οἰκοδομητόν, ᾗ τοιοῦτον αὐτὸ λέγομεν εἶναι, ἐνεργείᾳ ᾖ, οἰκοδομεῖται, καὶ ἔστι τοῦτο οἰκοδόμησις· ὁμοίως μάθησις, ἰάτρευσις, βάδισις, ἅλσις, γήρανσις, ἄδρυνσις. συμβαίνει δὲ κινεῖσθαι ὅταν ἡ ἐντελέχεια ᾖ αὐτή, καὶ οὔτε πρότερον οὔθ' ὕστερον. ἡ δὴ τοῦ δυνάμει ὄντος, ὅταν ἐντελεχείᾳ ὃν ἐνεργῇ, οὐχ ᾗ αὐτὸ ἀλλ' ᾗ κινητόν, κίνησίς ἐστιν. λέγω δὲ τὸ ᾗ ὧδε. ἔστι γὰρ ὁ χαλκὸς δυνάμει ἀνδριάς· ἀλλ' ὅμως οὐχ ἡ τοῦ χαλκοῦ ἐντελέχεια, ᾗ χαλκός, κίνησίς ἐστιν. οὐ γὰρ ταὐτὸν χαλκῷ εἶναι καὶ δυνάμει τινί, ἐπεὶ εἰ ταὐτὸν ἦν ἁπλῶς κατὰ τὸν λόγον, ἦν ἂν ἡ τοῦ χαλκοῦ ἐντελέχεια κίνησίς τις.

οὐκ ἔστι δὲ ταὐτό (δῆλον δ' ἐπὶ τῶν ἐναντίων· τὸ μὲν γὰρ δύνασθαι ὑγιαίνειν καὶ δύνασθαι κάμνειν οὐ ταὐτόν—καὶ γὰρ ἂν τὸ ὑγιαίνειν καὶ τὸ κάμνειν ταὐτὸν ἦν—τὸ δ' ὑποκείμενον καὶ ὑγιαῖνον καὶ νοσοῦν, εἴθ' ὑγρότης εἴθ' αἷμα, ταὐτὸ καὶ ἕν). ἐπεὶ δὲ οὐ τὸ αὐτό, ὥσπερ οὐδὲ χρῶμα ταὐτὸν καὶ ὁρατόν, ἡ τοῦ δυνατοῦ καὶ ᾗ δυνατὸν ἐντελέχεια κίνησίς ἐστιν.

ὅτι μὲν οὖν ἐστιν αὕτη, καὶ ὅτι συμβαίνει τότε κινεῖσθαι ὅταν ἡ ἐντελέχεια ᾖ αὐτή, καὶ οὔτε πρότερον οὔθ' ὕστερον, δῆλον (ἐνδέχεται γὰρ ἕκαστον ὁτὲ μὲν ἐνεργεῖν ὁτὲ δὲ μή, 1066a οἷον τὸ οἰκοδομητὸν ᾗ οἰκοδομητόν, καὶ ἡ τοῦ οἰκοδομητοῦ ἐνέργεια ᾗ οἰκοδομητὸν οἰκοδόμησίς ἐστιν· ἢ γὰρ τοῦτό ἐστιν, ἡ οἰκοδόμησις, ἡ ἐνέργεια, ἢ οἰκία· ἀλλ' ὅταν οἰκία ᾖ, οὐκέτι οἰκοδομητόν, οἰκοδομεῖται δὲ τὸ οἰκοδομητόν· ἀνάγκη ἄρα οἰκοδόμησιν τὴν ἐνέργειαν εἶναι, ἡ δ' οἰκοδόμησις κίνησίς τις, ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τῶν ἄλλων κινήσεων)· ὅτι δὲ καλῶς εἴρηται, δῆλον ἐξ ὧν οἱ ἄλλοι λέγουσι περὶ αὐτῆς, καὶ ἐκ τοῦ μὴ ῥᾴδιον εἶναι διορίσαι ἄλλως αὐτήν.

1066a οὔτε γὰρ ἐν ἄλλῳ τις γένει δύναιτ' ἂν θεῖναι αὐτήν· δῆλον δ' ἐξ ὧν λέγουσιν· οἱ μὲν γὰρ ἑτερότητα καὶ

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down, or light and heavy. So there are as many kinds of motion and change as there are of being.

Since in each genus there is a distinction between what is potentially and what is in actuality, I call the actuality of what is potentially, insofar as it is such, motion. That we are right is clear from the following. When the buildable, insofar as we call it such, is in actuality, it is being built, and this is building; and similarly with learning, healing, walking, jumping, aging, ripening. Motion occurs when this actuality itself is present, and neither before nor after. The actuality of what is potentially, then, when it is active, being in actuality—not insofar as it is itself but insofar as it is movable—is motion. By "insofar as" I mean this. Bronze is potentially a statue; yet the actuality of bronze, insofar as it is bronze, is not motion. For to be bronze and to be potentially something are not the same, since if they were the same without qualification, in account, the actuality of bronze would be a motion.

But they are not the same. (This is clear in the case of contraries: being capable of being healthy and being capable of being ill are not the same—otherwise being healthy and being ill would be the same—but the underlying subject, which is healthy and which is ill, whether it is moisture or blood, is one and the same.) And since they are not the same, just as color and the visible are not the same, it is the actuality of what is capable, insofar as it is capable, that is motion.

That this is motion, then, and that things are in motion just when this actuality itself is present, and neither before nor after, is clear. (For each thing can be active at one time and not at another — 1066a the buildable, for instance, insofar as it is buildable; and the actuality of the buildable insofar as it is buildable is building. For the actuality is either this—the building—or the house. But when there is a house, it is no longer buildable, whereas what is being built is the buildable. So the actuality must be building, and building is a kind of motion. The same argument applies to the other motions too.) That this has been stated correctly is clear from what others say about motion, and from the fact that it is not easy to define it in any other way.

For one could not place it in any other genus. This is clear from what people say. Some call it other-

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ἀνισότητα καὶ τὸ μὴ ὄν, ὧν οὐδὲν ἀνάγκη κινεῖσθαι, ἀλλ' οὐδ' ἡ μεταβολὴ οὔτ' εἰς ταῦτα οὔτ' ἐκ τούτων μᾶλλον ἢ τῶν ἀντικειμένων. αἴτιον δὲ τοῦ εἰς ταῦτα τιθέναι ὅτι ἀόριστόν τι δοκεῖ εἶναι ἡ κίνησις, τῆς δ' ἑτέρας συστοιχίας αἱ ἀρχαὶ διὰ τὸ στερητικαὶ εἶναι ἀόριστοι· οὔτε γὰρ τόδε οὔτε τοιόνδε οὐδεμία αὐτῶν οὔτε τῶν λοιπῶν κατηγοριῶν.	ness and inequality and not-being; but none of these need be in motion, nor is change to or from these any more than to or from their opposites. The reason for placing it among these is that motion seems to be something indeterminate, and the principles in the second column are indeterminate because they are privative; for none of them is a this or a such, nor in any of the other categories.[3]
τοῦ δὲ δοκεῖν ἀόριστον εἶναι τὴν κίνησιν αἴτιον ὅτι οὔτ' εἰς δύναμιν τῶν ὄντων οὔτ' εἰς ἐνέργειαν ἔστι θεῖναι αὐτήν· οὔτε γὰρ τὸ δυνατὸν ποσὸν εἶναι κινεῖται ἐξ ἀνάγκης, οὔτε τὸ ἐνεργείᾳ ποσόν, ἥ τε κίνησις ἐνέργεια μὲν εἶναι δοκεῖ τις, ἀτελὴς δέ· αἴτιον δ' ὅτι ἀτελὲς τὸ δυνατὸν οὗ ἐστὶν ἐνέργεια. καὶ διὰ τοῦτο χαλεπὸν αὐτὴν λαβεῖν τί ἐστιν· ἢ γὰρ εἰς στέρησιν ἀνάγκη θεῖναι ἢ εἰς δύναμιν ἢ εἰς ἐνέργειαν ἁπλῆν, τούτων δ' οὐδὲν φαίνεται ἐνδεχόμενον, ὥστε λείπεται τὸ λεχθὲν εἶναι, καὶ ἐνέργειαν καὶ [μὴ] ἐνέργειαν τὴν εἰρημένην, ἰδεῖν μὲν χαλεπὴν ἐνδεχομένην δ' εἶναι. καὶ ὅτι ἐστὶν ἡ κίνησις ἐν τῷ κινητῷ, δῆλον· ἐντελέχεια γάρ ἐστι τούτου ὑπὸ τοῦ κινητικοῦ. καὶ ἡ τοῦ κινητικοῦ ἐνέργεια οὐκ ἄλλη ἐστίν.	The reason motion seems to be indeterminate is that it cannot be placed either under the potentiality of things or under their actuality; for neither what can be of a certain quantity nor what is actually of a certain quantity is necessarily in motion. And motion seems to be a kind of actuality, but incomplete; the reason is that what is potential, of which it is the actuality, is incomplete. That is why it is hard to grasp what it is: it must be placed either under privation, or under potentiality, or under actuality without qualification, and none of these seems possible. What remains, then, is that it is what we have said—an actuality, and actuality of the kind described—which is hard to see but can exist. And it is clear that motion is in the movable; for it is the actuality of the movable, brought about by what is capable of causing motion. And the actuality of what is capable of causing motion is no different.
δεῖ μὲν γὰρ εἶναι ἐντελέχειαν ἀμφοῖν· κινητικὸν μὲν γάρ ἐστι τῷ δύνασθαι, κινοῦν δὲ τῷ ἐνεργεῖν, ἀλλ' ἔστιν ἐνεργητικὸν τοῦ κινητοῦ, ὥσθ' ὁμοίως μία ἡ ἀμφοῖν ἐνέργεια ὥσπερ τὸ αὐτὸ διάστημα ἓν πρὸς δύο καὶ δύο πρὸς ἕν, καὶ τὸ ἄναντες καὶ τὸ κάταντες, ἀλλὰ τὸ εἶναι οὐχ ἕν· ὁμοίως δὲ καὶ ἐπὶ τοῦ κινοῦντος καὶ κινουμένου.	For there must be an actuality of both. A thing is capable of causing motion by being able to, and actually causes it by being active; but what it activates is the movable. So the actuality of both is one in the same way that the interval from one to two and from two to one is the same, and so is the road uphill and the road downhill, though their being is not one. It is the same with the mover and the moved.

THE INFINITE

No actual infinite exists, either as a separate thing or as a perceptible body.

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τὸ δ' ἄπειρον ἢ τὸ ἀδύνατον διελθεῖν τῷ μὴ πεφυκέναι διιέναι, καθάπερ ἡ φωνὴ ἀόρατος, ἢ τὸ διέξοδον ἔχον ἀτελεύτητον, ἢ ὃ μόλις, ἢ ὃ πεφυκὸς ἔχειν μὴ ἔχει διέξοδον ἢ πέρας· ἔτι προσθέσει ἢ ἀφαιρέσει ἢ ἄμφω. 1066b	The infinite is either what cannot be traversed because it is not of a nature to be traversed, in the way that a sound is invisible; or what admits of a traversal that never ends; or what can scarcely be

3 The "column" is one side of the Pythagorean table of paired opposites (limit/unlimited, odd/even, one/plurality, straight/curved, good/bad, and so on).

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χωριστὸν μὲν δὴ αὐτό τι ὂν οὐχ οἷόν τ' εἶναι· εἰ γὰρ μήτε μέγεθος μήτε πλῆθος, οὐσία δ' αὐτὸ τὸ ἄπειρον καὶ μὴ συμβεβηκός, ἀδιαίρετον ἔσται (τὸ γὰρ διαιρετὸν ἢ μέγεθος ἢ πλῆθος), εἰ δὲ ἀδιαίρετον, οὐκ ἄπειρον, εἰ μὴ καθάπερ ἡ φωνὴ ἀόρατος· ἀλλ' οὐχ οὕτω λέγουσιν οὐδ' ἡμεῖς ζητοῦμεν, ἀλλ' ὡς ἀδιέξοδον. ἔτι πῶς ἐνδέχεται καθ' αὑτὸ εἶναι ἄπειρον, εἰ μὴ καὶ ἀριθμὸς καὶ μέγεθος, ὧν πάθος τὸ ἄπειρον;

1066b ἔτι εἰ κατὰ συμβεβηκός, οὐκ ἂν εἴη στοιχεῖον τῶν ὄντων ᾗ ἄπειρον, ὥσπερ οὐδὲ τὸ ἀόρατον τῆς διαλέκτου, καίτοι ἡ φωνὴ ἀόρατος. καὶ ὅτι οὐκ ἔστιν ἐνεργείᾳ εἶναι τὸ ἄπειρον, δῆλον. ἔσται γὰρ ὁτιοῦν αὐτοῦ ἄπειρον μέρος τὸ λαμβανόμενον (τὸ γὰρ ἀπείρῳ εἶναι καὶ ἄπειρον τὸ αὐτό, εἴπερ οὐσία τὸ ἄπειρον καὶ μὴ καθ' ὑποκειμένου), ὥστε ἢ ἀδιαίρετον, ἢ εἰς ἄπειρα διαιρετόν, εἰ μεριστόν· πολλὰ δ' εἶναι τὸ αὐτὸ ἀδύνατον ἄπειρα (ὥσπερ γὰρ ἀέρος ἀὴρ μέρος, οὕτως ἄπειρον ἀπείρου, εἰ ἔστιν οὐσία καὶ ἀρχή)· ἀμέριστον ἄρα καὶ ἀδιαίρετον. ἀλλὰ ἀδύνατον τὸ ἐντελεχείᾳ ὂν ἄπειρον (ποσὸν γὰρ εἶναι ἀνάγκη)· κατὰ συμβεβηκὸς ἄρα ὑπάρχει.

ἀλλ' εἰ οὕτως, εἴρηται ὅτι οὐκ ἐνδέχεται εἶναι ἀρχήν, ἀλλ' ἐκεῖνο ᾧ συμβέβηκε, τὸν ἀέρα ἢ τὸ ἄρτιον.—αὕτη μὲν οὖν ἡ ζήτησις καθόλου, ὅτι δ' ἐν τοῖς αἰσθητοῖς οὐκ ἔστιν, ἐνθένδε δῆλον· εἰ γὰρ σώματος λόγος τὸ ἐπιπέδοις ὡρισμένον, οὐκ εἴη ἂν ἄπειρον σῶμα οὔτ' αἰσθητὸν οὔτε νοητόν, οὐδ' ἀριθμὸς ὡς κεχωρισμένος καὶ ἄπειρος· ἀριθμητὸν γὰρ ὁ ἀριθμὸς ἢ τὸ ἔχον ἀριθμόν. φυσικῶς δὲ ἐκ τῶνδε δῆλον· οὔτε γὰρ σύνθετον οἷόν τ' εἶναι οὔθ' ἁπλοῦν.

σύνθετον μὲν γὰρ οὐκ ἔσται σῶμα, εἰ πεπέρανται τῷ πλήθει τὰ στοιχεῖα (δεῖ γὰρ ἰσάζειν τὰ ἐναντία καὶ μὴ εἶναι ἓν αὐτῶν ἄπειρον· εἰ γὰρ ὁτῳοῦν λείπεται ἡ θατέρου σώματος δύναμις, φθαρήσεται ὑπὸ τοῦ ἀπείρου τὸ πεπερασμένον· ἕκαστον δ' ἄπειρον εἶναι ἀδύνατον,

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traversed; or what, though of a nature to have a traversal or a limit, does not have one. Further, a thing is infinite by addition, or by subtraction, or both. 1066b Now the infinite cannot be a separate thing existing by itself. For if it is neither a magnitude nor a plurality, but the infinite itself is a substance and not an accident, it will be indivisible (for what is divisible is either a magnitude or a plurality); and if it is indivisible, it is not infinite, except in the way that a sound is invisible. But that is not what people mean, nor what we are inquiring into: we mean the infinite as what cannot be traversed. Again, how can the infinite exist in its own right, if number and magnitude, of which infinity is an attribute, do not?

Further, if it is infinite accidentally, it could not, as infinite, be an element of the things that are, any more than the invisible is an element of speech, even though speech is invisible. And it is clear that the infinite cannot exist in actuality. For then any part of it that one took would be infinite (for to be infinite and the infinite are the same, if the infinite is a substance and not predicated of a subject). So it is either indivisible or, if it has parts, divisible into infinites. But the same thing cannot be many infinites (for as air is part of air, so an infinite would be part of an infinite, if it is a substance and a principle). It must, then, be without parts and indivisible. But what is actually infinite cannot be so, since it must be a quantity. So the infinite belongs to things accidentally.

But if so, it has been said that it cannot be a principle; the principle is rather that to which it is accidental, the air or the even.—This inquiry, then, has been general. But that the infinite is not found among perceptible things is clear from the following. If the definition of body is "what is bounded by surfaces," there could be no infinite body, whether perceptible or intelligible; nor could there be a number that is separate and infinite, since a number, or what has a number, is countable. From the standpoint of physics, it is clear from these considerations: the infinite can be neither composite nor simple.

It will not be a composite body if the elements are limited in number. (For the contraries must balance, and none of them can be infinite: if the power of one body falls short of the other's by any amount at all, the finite will be destroyed by the

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σῶμα γάρ ἐστι τὸ πάντῃ ἔχον διάστασιν, ἄπειρον δὲ τὸ ἀπεράντως διεστηκός, ὥστ' εἰ τὸ ἄπειρον σῶμα, πάντῃ ἔσται ἄπειρον)· οὐδὲ ἓν δὲ καὶ ἁπλοῦν ἐνδέχεται τὸ ἄπειρον εἶναι σῶμα, οὔθ' ὡς λέγουσί τινες, παρὰ τὰ στοιχεῖα ἐξ οὗ γεννῶσι ταῦτα (οὐκ ἔστι γὰρ τοιοῦτο σῶμα παρὰ τὰ στοιχεῖα· ἅπαν γάρ, ἐξ οὗ ἐστί, καὶ διαλύεται εἰς τοῦτο, οὐ φαίνεται δὲ τοῦτο παρὰ τὰ ἁπλᾶ σώματα), [1067a] οὐδὲ πῦρ οὐδ' ἄλλο τῶν στοιχείων οὐθέν· χωρὶς γὰρ τοῦ ἄπειρον εἶναί τι αὐτῶν, ἀδύνατον τὸ ἅπαν, κἂν ᾖ πεπερασμένον, ἢ εἶναι ἢ γίγνεσθαι ἕν τι αὐτῶν, ὥσπερ Ἡράκλειτός φησιν ἅπαντα γίγνεσθαί ποτε πῦρ.

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infinite. And each of them cannot be infinite, since a body is what has extension in every direction, and the infinite is what extends without limit; so if the infinite is a body, it will be infinite in every direction.) Nor can the infinite be a single, simple body—neither, as some say, something apart from the elements, from which they generate the elements (for there is no such body apart from the elements: everything is dissolved into what it is made of, and no such thing is observed apart from the simple bodies), [1067a] nor fire nor any other of the elements. For quite apart from any of them being infinite, it is impossible for the universe, even if it is finite, either to be or to become any one of them, in the way that Heraclitus says all things at some time become fire.

1067a ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τοῦ ἑνὸς ὃ ποιοῦσι παρὰ τὰ στοιχεῖα οἱ φυσικοί· πᾶν γὰρ μεταβάλλει ἐξ ἐναντίου, οἷον ἐκ θερμοῦ εἰς ψυχρόν.—ἔτι τὸ αἰσθητὸν σῶμα πού, καὶ ὁ αὐτὸς τόπος ὅλου καὶ μορίου, οἷον τῆς γῆς, ὥστ' εἰ μὲν ὁμοειδές, ἀκίνητον ἔσται ἢ ἀεὶ οἰσθήσεται, τοῦτο δὲ ἀδύνατον (τί γὰρ μᾶλλον κάτω ἢ ἄνω ἢ ὁπουοῦν; οἷον εἰ βῶλος εἴη, ποῦ αὔτη κινήσεται ἢ μενεῖ; ὁ γὰρ τόπος τοῦ συγγενοῦς αὐτῇ σώματος ἄπειρος· καθέξει οὖν τὸν ὅλον τόπον; καὶ πῶς; τίς οὖν ἡ μονὴ καὶ ἡ κίνησις;

The same argument applies to the one that the natural philosophers posit apart from the elements. For everything changes from a contrary, from hot to cold, for instance.—Further, a perceptible body is somewhere, and the whole and the part have the same place, as with the earth. So if the infinite is homogeneous, it will either be motionless or always be moving. But this is impossible. (For why should it move down rather than up, or anywhere else? If there were a clod of earth, for example, where would it move or stay at rest? The place of the body akin to it is infinite. Will it, then, occupy the whole place? And how? What, then, will its rest or its motion be?

ἢ πανταχοῦ μενεῖ—οὐ κινηθήσεται ἄρα, ἢ πανταχοῦ κινηθήσεται —οὐκ ἄρα στήσεται)· εἰ δ' ἀνόμοιον τὸ πᾶν, ἀνόμοιοι καὶ οἱ τόποι, καὶ πρῶτον μὲν οὐχ ἓν τὸ σῶμα τοῦ παντὸς ἀλλ' ἢ τῷ ἅπτεσθαι, εἶτα ἢ πεπερασμένα ταῦτ' ἔσται ἢ ἄπειρα εἴδει. πεπερασμένα μὲν οὖν οὐχ οἷόν τε (ἔσται γὰρ τὰ μὲν ἄπειρα τὰ δ' οὔ, εἰ τὸ πᾶν ἄπειρον, οἷον πῦρ ἢ ὕδωρ· φθορὰ δὲ τὸ τοιοῦτον τοῖς ἐναντίοις)· εἰ δ' ἄπειρα καὶ ἁπλᾶ, καὶ οἱ τόποι ἄπειροι καὶ ἔσται ἄπειρα στοιχεῖα· εἰ δὲ τοῦτ' ἀδύνατον καὶ οἱ τόποι πεπερασμένοι, καὶ τὸ πᾶν ἀνάγκη πεπεράνθαι.

Either it will rest everywhere, and then it will not move; or it will move everywhere, and then it will not come to a stop.) And if the universe is not homogeneous, its places are not alike either. First, then, the body of the universe will not be one, except by contact; and second, its parts will be either finite or infinite in kind. They cannot be finite: for then, if the universe is infinite, some of them would be infinite and others not—fire, say, or water—and such a thing would mean destruction for their contraries. And if they are infinite and simple, the places too will be infinite, and there will be infinitely many elements. But if this is impossible and the places are finite, the universe too must be finite.

ὅλως δ' ἀδύνατον ἄπειρον εἶναι σῶμα καὶ τόπον τοῖς σώμασιν, εἰ πᾶν σῶμα αἰσθητὸν ἢ βάρος ἔχει ἢ κουφότητα· ἢ γὰρ ἐπὶ τὸ μέσον ἢ ἄνω οἰσθήσεται, ἀδύνατον δὲ τὸ ἄπειρον ἢ πᾶν ἢ τὸ ἥμισυ ὁποτερονοῦν

In general, there cannot be an infinite body, or an infinite place for bodies, if every perceptible body has either weight or lightness. For it will move either toward the middle or upward, and the infin-

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πεπονθέναι· πῶς γὰρ διελεῖς; ἢ πῶς τοῦ ἀπείρου ἔσται τὸ μὲν κάτω τὸ δ' ἄνω, ἢ ἔσχατον καὶ μέσον; ἔτι πᾶν σῶμα αἰσθητὸν ἐν τόπῳ, τόπου δὲ εἴδη ἕξ, ἀδύνατον δ' ἐν τῷ ἀπείρῳ σώματι ταῦτ' εἶναι. ὅλως δ' εἰ ἀδύνατον τόπον ἄπειρον εἶναι, καὶ σῶμα ἀδύνατον· τὸ γὰρ ἐν τόπῳ πού, τοῦτο δὲ σημαίνει ἢ ἄνω ἢ κάτω ἢ τῶν λοιπῶν τι, τούτων δ' ἕκαστον πέρας τι.

τὸ δ' ἄπειρον οὐ ταὐτὸν ἐν μεγέθει καὶ κινήσει καὶ χρόνῳ ὡς μία τις φύσις, ἀλλὰ τὸ ὕστερον λέγεται κατὰ τὸ πρότερον, οἷον κίνησις κατὰ τὸ μέγεθος ἐφ' οὗ κινεῖται ἢ ἀλλοιοῦται ἢ αὔξεται, χρόνος δὲ διὰ τὴν κίνησιν.

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ite—whether the whole or the half of it—cannot undergo either. For how will you divide it? Or how will part of the infinite be down and part up, or part at the extremity and part in the middle? Further, every perceptible body is in a place, and there are six kinds of place, but these cannot exist in an infinite body. In general, if there cannot be an infinite place, there cannot be an infinite body either. For what is in a place is somewhere, and this means up or down or one of the other directions, and each of these is a limit.

The infinite is not the same in magnitude, in motion, and in time, as though it were a single nature. Rather, what is posterior is called infinite by reference to what is prior: motion, for instance, by reference to the magnitude over which something moves, or alters, or grows; and time because of motion.

KINDS OF CHANGE

Change is between contraries or contradictories; coming to be and passing away are not motions.

GREEK

1067b μεταβάλλει δὲ τὸ μεταβάλλον τὸ μὲν κατὰ συμβεβηκός, ὡς τὸ μουσικὸν βαδίζει, τὸ δὲ τῷ τούτου τι μεταβάλλειν ἁπλῶς λέγεται μεταβάλλειν, οἷον ὅσα κατὰ μέρη (ὑγιάζεται γὰρ τὸ σῶμα, ὅτι ὁ ὀφθαλμός), ἔστι δέ τι ὃ καθ' αὑτὸ πρῶτον κινεῖται, καὶ τοῦτ' ἔστι τὸ καθ' αὑτὸ κινητόν. ἔστι δέ [τι] καὶ ἐπὶ τοῦ κινοῦντος ὡσαύτως· κινεῖ γὰρ κατὰ συμβεβηκὸς τὸ δὲ κατὰ μέρος τὸ δὲ καθ' αὑτό· ἔστι δέ τι τὸ κινοῦν πρῶτον· ἔστι δέ τι τὸ κινούμενον, ἔτι ἐν ᾧ χρόνῳ καὶ ἐξ οὗ καὶ εἰς ὅ. τὰ δ' εἴδη καὶ τὰ πάθη καὶ ὁ τόπος, εἰς ἃ κινοῦνται τὰ κινούμενα, ἀκίνητά ἐστιν, οἷον ἐπιστήμη καὶ θερμότης· ἔστι δ' οὐχ ἡ θερμότης κίνησις ἀλλ' ἡ θέρμανσις.

ἡ δὲ μὴ κατὰ συμβεβηκὸς μεταβολὴ οὐκ ἐν ἅπασιν ὑπάρχει ἀλλ' ἐν τοῖς ἐναντίοις καὶ μεταξὺ καὶ ἐν ἀντιφάσει· τούτου δὲ πίστις ἐκ τῆς ἐπαγωγῆς. μεταβάλλει δὲ τὸ μεταβάλλον ἢ ἐξ ὑποκειμένου εἰς ὑποκείμενον, ἢ οὐκ ἐξ ὑποκειμένου εἰς οὐχ ὑποκείμενον, ἢ ἐξ ὑποκειμένου εἰς οὐχ ὑποκείμενον, ἢ οὐκ ἐξ ὑποκειμένου εἰς ὑποκείμενον (λέγω δὲ ὑποκείμενον τὸ καταφάσει δηλούμενον), ὥστ' ἀνάγκη τρεῖς εἶναι μεταβολάς· ἡ γὰρ ἐξ οὐχ ὑποκειμένου εἰς μὴ ὑποκείμενον οὐκ ἔστι

ENGLISH

What changes changes in some cases accidentally, as when the musical walks. In other cases it is said to change without qualification because something belonging to it changes, as with things that change in their parts (the body is healed because the eye is). And there is something that is moved primarily and in its own right, and this is what is movable in its own right. The same holds for the mover: it causes motion accidentally, or in respect of a part, or in its own right. There is something that is the first mover; there is something that is moved; and further there is the time in which, that from which, and that into which. But the forms, the attributes, and the place into which moving things are moved are unmoved—knowledge, for instance, and heat. It is not heat that is a motion, but heating.

Change that is not accidental is not found in all things, but between contraries, their intermediates, and contradictories; the evidence for this comes from induction. What changes changes from subject to subject, or from not-subject to not-subject, or from subject to not-subject, or from not-subject to subject (by "subject" I mean what is signified by an affirmative term). So there must be three kinds of change; for change from not-subject

GREEK	ENGLISH
μεταβολή· οὔτε γὰρ ἐναντία οὔτε ἀντίφασίς ἐστιν, ὅτι οὐκ ἀντίθεσις. ἡ μὲν οὖν οὐκ ἐξ ὑποκειμένου εἰς ὑποκείμενον κατ' ἀντίφασιν γένεσίς ἐστιν, ἡ μὲν ἁπλῶς ἁπλῆ, ἡ δὲ τινὸς τίς· ἡ δ' ἐξ ὑποκειμένου εἰς μὴ ὑποκείμενον φθορά, ἡ μὲν ἁπλῶς ἁπλῆ, ἡ δὲ τινὸς τίς.	to not-subject is not change, since the terms are neither contraries nor contradictories, there being no opposition between them. Change from not-subject to subject, which is change by way of contradiction, is coming-to-be—unqualified coming-to-be when it is unqualified, and a particular coming-to-be when it is particular. Change from subject to not-subject is passing away—unqualified when it is unqualified, and particular when it is particular.
εἰ δὴ τὸ μὴ ὂν λέγεται πλεοναχῶς, καὶ μήτε τὸ κατὰ σύνθεσιν ἢ διαίρεσιν ἐνδέχεται κινεῖσθαι μήτε τὸ κατὰ δύναμιν τὸ τῷ ἁπλῶς ὄντι ἀντικείμενον (τὸ γὰρ μὴ λευκὸν ἢ μὴ ἀγαθὸν ὅμως ἐνδέχεται κινεῖσθαι κατὰ συμβεβηκός, εἴη γὰρ ἂν ἄνθρωπος τὸ μὴ λευκόν· τὸ δ' ἁπλῶς μὴ τόδε οὐδαμῶς), ἀδύνατον τὸ μὴ ὂν κινεῖσθαι (εἰ δὲ τοῦτο, καὶ τὴν γένεσιν κίνησιν εἶναι· γίγνεται γὰρ τὸ μὴ ὄν· εἰ γὰρ καὶ ὅτι μάλιστα κατὰ συμβεβηκὸς γίγνεται, ἀλλ' ὅμως ἀληθὲς εἰπεῖν ὅτι ὑπάρχει τὸ μὴ ὂν κατὰ τοῦ γιγνομένου ἁπλῶς)· ὁμοίως δὲ καὶ τὸ ἠρεμεῖν. ταῦτά τε δὴ συμβαίνει δυσχερῆ, καὶ εἰ πᾶν τὸ κινούμενον ἐν τόπῳ, τὸ δὲ μὴ ὂν οὐκ ἔστιν ἐν τόπῳ· εἴη γὰρ ἂν πού.	Now if "what is not" has several senses, and neither what is not in the sense of combination or separation can be moved, nor what is not in the sense of potentiality, which is opposed to what is without qualification (for the not-white or the not-good can nevertheless be moved accidentally, since the not-white might be a human being; but what is not a "this" without qualification cannot be moved in any way), then what is not cannot be moved. (If so, coming-to-be cannot be motion either, since it is what is not that comes to be. For even if it comes to be only accidentally, still it is true to say that "not being" belongs to what comes to be without qualification.) Likewise, what is not cannot be at rest either. These awkward consequences follow, then; and further, everything that is moved is in a place, but what is not is not in a place, for then it would be somewhere.
οὐδὲ δὴ ἡ φθορὰ κίνησις· ἐναντίον γὰρ κινήσει κίνησις ἢ ἠρεμία, φθορὰ δὲ γενέσει. 1068a ἐπεὶ δὲ πᾶσα κίνησις μεταβολή τις, μεταβολαὶ δὲ τρεῖς αἱ εἰρημέναι, τούτων δ' αἱ κατὰ γένεσιν καὶ φθορὰν οὐ κινήσεις, αὗται δ' εἰσὶν αἱ κατ' ἀντίφασιν, ἀνάγκη τὴν ἐξ ὑποκειμένου εἰς ὑποκείμενον κίνησιν εἶναι μόνην. τὰ δ' ὑποκείμενα ἢ ἐναντία ἢ μεταξύ (καὶ γὰρ ἡ στέρησις κείσθω ἐναντίον), καὶ δηλοῦται καταφάσει, οἷον τὸ γυμνὸν καὶ νωδὸν καὶ μέλαν.	Nor, then, is passing away a motion. For the contrary of a motion is a motion or rest, whereas the contrary of passing away is coming-to-be. 1068a Since every motion is a kind of change, and the changes are the three we have described, and of these the changes by way of coming-to-be and passing away are not motions—these are the ones between contradictories—it follows that only change from subject to subject is motion. The subjects are either contraries or intermediates (for let privation too count as a contrary), and they are signified by an affirmative term: naked, toothless, black, for instance.

NO CHANGE OF CHANGE

Motion occurs only in quality, quantity and place; together, touching and continuity are defined.

GREEK	ENGLISH
1068a εἰ οὖν αἱ κατηγορίαι διῄρηνται οὐσίᾳ, ποιότητι, τόπῳ, τῷ ποιεῖν ἢ πάσχειν, τῷ πρός τι, τῷ ποσῷ, ἀνάγκη τρεῖς εἶναι κινήσεις, ποιοῦ ποσοῦ τόπου· κατ' οὐσίαν δ' οὔ, διὰ τὸ	If, then, the categories are divided into substance, quality, place, acting or being acted on, relation, and quantity, there must be three kinds of motion:

GREEK

μηθὲν εἶναι οὐσίᾳ ἐναντίον, οὐδὲ τοῦ πρός τι (ἔστι γὰρ θατέρου μεταβάλλοντος μὴ ἀληθεύεσθαι θάτερον μηδὲν μεταβάλλον, ὥστε κατὰ συμβεβηκὸς ἡ κίνησις αὐτῶν), οὐδὲ ποιοῦντος καὶ πάσχοντος, ἢ κινοῦντος καὶ κινουμένου, ὅτι οὐκ ἔστι κινήσεως κίνησις οὐδὲ γενέσεως γένεσις, οὐδ' ὅλως μεταβολῆς μεταβολή.

διχῶς γὰρ ἐνδέχεται κινήσεως εἶναι κίνησιν, ἢ ὡς ὑποκειμένου (οἷον ὁ ἄνθρωπος κινεῖται ὅτι ἐκ λευκοῦ εἰς μέλαν μεταβάλλει, ὥστε οὕτω καὶ ἡ κίνησις ἢ θερμαίνεται ἢ ψύχεται ἢ τόπον ἀλλάττει ἢ αὔξεται· τοῦτο δὲ ἀδύνατον· οὐ γὰρ τῶν ὑποκειμένων τι ἡ μεταβολή), ἢ τῷ ἕτερόν τι ὑποκείμενον ἐκ μεταβολῆς μεταβάλλειν εἰς ἄλλο εἶδος, οἷον ἄνθρωπον ἐκ νόσου εἰς ὑγίειαν. ἀλλ' οὐδὲ τοῦτο δυνατὸν πλὴν κατὰ συμβεβηκός. πᾶσα γὰρ κίνησις ἐξ ἄλλου εἰς ἄλλο ἐστὶ μεταβολή, καὶ γένεσις καὶ φθορὰ ὡσαύτως· πλὴν αἱ μὲν εἰς ἀντικείμενα ὠδί, ἡ δ' ὠδί, ἡ κίνησις. ἅμα οὖν μεταβάλλει ἐξ ὑγιείας εἰς νόσον, καὶ ἐξ αὐτῆς ταύτης τῆς μεταβολῆς εἰς ἄλλην.

δῆλον δὴ ὅτι ἂν νοσήσῃ, μεταβεβληκὸς ἔσται εἰς ὁποιανοῦν (ἐνδέχεται γὰρ ἠρεμεῖν) καὶ ἔτι εἰς μὴ τὴν τυχοῦσαν ἀεί· κἀκείνη ἕκ τινος εἴς τι ἄλλο ἔσται· ὥσθ' ἡ ἀντικειμένη ἔσται, ὑγίανσις, ἀλλὰ τῷ συμβεβηκέναι, οἷον ἐξ ἀναμνήσεως εἰς λήθην μεταβάλλει ὅτι ᾧ ὑπάρχει ἐκεῖνο μεταβάλλει, ὁτὲ μὲν εἰς ἐπιστήμην ὁτὲ δὲ εἰς ἄγνοιαν.—ἔτι εἰς ἄπειρον βαδιεῖται, εἰ ἔσται μεταβολῆς μεταβολὴ καὶ γενέσεως γένεσις. ἀνάγκη δὴ καὶ τὴν προτέραν, εἰ ἡ ὑστέρα· οἷον εἰ ἡ ἁπλῆ γένεσις ἐγίγνετό ποτε, καὶ τὸ γιγνόμενον ἐγίγνετο· [1068b] ὥστε οὔπω ἦν τὸ γιγνόμενον ἁπλῶς, ἀλλά τι γιγνόμενον [ἤ] γιγνόμενον ἤδη. καὶ τοῦτ' ἐγίγνετό ποτε, ὥστ' οὐκ ἦν πω τότε γιγνόμενον. ἐπεὶ δὲ τῶν ἀπείρων οὐκ ἔστι τι πρῶτον, οὐκ ἔσται τὸ πρῶτον, ὥστ' οὐδὲ τὸ ἐχόμενον.

[1068b] οὔτε γίγνεσθαι οὖν οὔτε κινεῖσθαι οἷόν τε οὔτε μεταβάλλειν οὐδέν. ἔτι τοῦ αὐτοῦ κίνησις ἡ ἐναντία καὶ

ENGLISH

of quality, of quantity, and of place. There is no motion with respect to substance, because nothing is contrary to substance. Nor is there motion of relation (for when one of the two relata changes, the other may cease to be truly said of it without changing at all, so that their motion is accidental). Nor is there motion of agent and patient, or of mover and moved, because there is no motion of motion, nor coming-to-be of coming-to-be, nor in general change of change.

For there could be motion of motion in two ways. First, motion might be the subject that is moved: as a human being is moved because he changes from pale to dark, so motion too would be heated or cooled or change its place or grow. But this is impossible, since change is not a subject. Or, second, some other subject might change from one change into another form—a human being, say, from sickness into health. But this too is not possible, except accidentally. For every motion is a change from something into something else, and so likewise are coming-to-be and passing away—except that these go into opposites in one way and motion in another. So a thing would at the same time be changing from health into sickness and from this very change into another.

Clearly, then, once it has fallen sick, it will have changed into some change or other (for it can be at rest), and moreover never into just any chance change; and that change too will be from something into something else. So it will be the opposite change, getting well—but only accidentally, just as a change from remembering to forgetting occurs because the thing it belongs to is changing, now toward knowledge and now toward ignorance.—Further, there will be an infinite regress if there is change of change and coming-to-be of coming-to-be. For if the later exists, the earlier must too. If, for example, simple coming-to-be was once coming to be, then what was coming to be was also coming to be; [1068b] so there was not yet what was simply coming to be, but something that was coming to be coming to be. And this too was once coming to be, so that at that time it was not yet coming to be. But since in an infinite series there is no first term, there will be no first here, and so no next either.

Nothing, then, could come to be, or be moved, or change. Further, the same thing is capable of a

GREEK

ἠρέμησις, καὶ γένεσις καὶ φθορά, ὥστε τὸ γιγνόμενον, ὅταν γένηται γιγνόμενον, τότε φθείρεται· οὔτε γὰρ εὐθὺς γιγνόμενον οὔθ' ὕστερον· εἶναι γὰρ δεῖ τὸ φθειρόμενον. ἔτι δεῖ ὕλην ὑπεῖναι τῷ γιγνομένῳ καὶ μεταβάλλοντι. τίς οὖν ἔσται ὥσπερ τὸ ἀλλοιωτὸν σῶμα ἢ ψυχή—οὕτω τί τὸ γιγνόμενον κίνησις ἢ γένεσις; καὶ ἔτι τί εἰς ὃ κινοῦνται; δεῖ γὰρ εἶναι τὴν τοῦδε ἐκ τοῦδε εἰς τόδε κίνησιν ἢ γένεσιν. πῶς οὖν; οὐ γὰρ ἔσται μάθησις τῆς μαθήσεως, ὥστ' οὐδὲ γένεσις γενέσεως.

ENGLISH

motion and of the contrary motion and of rest, and of coming-to-be and passing away. So what is coming to be, when it has come to be coming to be, would then be passing away. For it cannot be passing away as soon as it is coming to be, nor afterward, since what passes away must exist. Further, there must be matter underlying what comes to be and what changes. What, then, will it be? As the body or the soul is what undergoes alteration, what is it that becomes motion or coming-to-be? And further, what is it that they move into? For motion or coming-to-be must be of this thing, from this, into that. How, then, can this be? There cannot be a learning of learning, and so there cannot be a coming-to-be of coming-to-be either.

ἐπεὶ δ' οὔτ' οὐσίας οὔτε τοῦ πρός τι οὔτε τοῦ ποιεῖν καὶ πάσχειν, λείπεται κατὰ τὸ ποιὸν καὶ ποσὸν καὶ τόπον κίνησιν εἶναι (τούτων γὰρ ἑκάστῳ ἐναντίωσις ἔστιν), λέγω δὲ τὸ ποιὸν οὐ τὸ ἐν τῇ οὐσίᾳ (καὶ γὰρ ἡ διαφορὰ ποιόν) ἀλλὰ τὸ παθητικόν, καθ' ὃ λέγεται πάσχειν ἢ ἀπαθὲς εἶναι. τὸ δὲ ἀκίνητον τό τε ὅλως ἀδύνατον κινηθῆναι καὶ τὸ μόλις ἐν χρόνῳ πολλῷ ἢ βραδέως ἀρχόμενον, καὶ τὸ πεφυκὸς μὲν κινεῖσθαι καὶ δυνάμενον ⟨μὴ κινούμενον⟩ δὲ ὅτε πέφυκε καὶ οὗ καὶ ὡς· ὃ καλῶ ἠρεμεῖν τῶν ἀκινήτων μόνον· ἐναντίον γὰρ ἠρεμία κινήσει, ὥστε στέρησις ἂν εἴη τοῦ δεκτικοῦ.

Since there is no motion of substance, of relation, or of acting and being acted on, it remains that motion is with respect to quality, quantity, and place (for each of these admits of contrariety). By quality I do not mean the quality in the substance (for the differentia too is a quality) but the affective quality, in virtue of which a thing is said to be acted on or to be incapable of being acted on. The immovable is what cannot be moved at all; what can be moved only with difficulty, over a long time, or starts slowly; and what is of a nature to be moved and is capable of it, but is not moved when, where, and as it is of a nature to be. This last is the only kind of the immovable that I call being at rest. For rest is contrary to motion, so it must be a privation in what is receptive of motion.

ἅμα κατὰ τόπον ὅσα ἐν ἐνὶ τόπῳ πρώτῳ, καὶ χωρὶς ὅσα ἐν ἄλλῳ· ἅπτεσθαι δὲ ὧν τὰ ἄκρα ἅμα· μεταξὺ δ' εἰς ὃ πέφυκε πρότερον ἀφικνεῖσθαι τὸ μεταβάλλον ἢ εἰς ὃ ἔσχατον μεταβάλλει κατὰ φύσιν τὸ συνεχῶς μεταβάλλον. ἐναντίον κατὰ τόπον τὸ κατ' εὐθεῖαν ἀπέχον πλεῖστον· ἑξῆς δὲ οὗ μετὰ τὴν ἀρχὴν ὄντος, θέσει ἢ εἴδει ἢ ἄλλως πως ἀφορισθέντος, μηθὲν μεταξύ ἐστι τῶν ἐν ταὐτῷ γένει καὶ οὗ ἐφεξῆς ἐστίν, οἷον γραμμαὶ γραμμῆς ἢ μονάδες μονάδος ἢ οἰκίας οἰκία (ἄλλο δ' οὐθὲν κωλύει μεταξὺ εἶναι). τὸ γὰρ ἐξῆς τινὸς ἐφεξῆς καὶ ὕστερόν τι· οὐ γὰρ τὸ ἓν ἑξῆς τῶν δύο οὐδ' ἡ νουμηνία τῆς δευτέρας. [1069a] ἐχόμενον δὲ ὃ ἂν ἑξῆς ὂν ἅπτηται.

Things are together in place when they are in one primary place, and apart when they are in different places. Things touch when their extremities are together. Between is what a changing thing naturally reaches before it reaches the last point into which it changes, when it changes continuously in accordance with nature. Contrary in place is what is farthest away in a straight line. Successive is what comes after the starting point—its order being fixed by position, by form, or in some other way—with nothing of the same genus between it and what it succeeds: lines after a line, for instance, or units after a unit, or a house after a house (nothing prevents something of another kind from being between). For what is successive succeeds something and comes after it: one does not succeed two, nor the first day of the month the

GREEK

ENGLISH

second. [1069a] Contiguous is what is successive and touches.

1069a ἐπεὶ δὲ πᾶσα μεταβολὴ ἐν τοῖς ἀντικειμένοις, ταῦτα δὲ τὰ ἐναντία καὶ ἀντίφασις, ἀντιφάσεως δ' οὐδὲν ἀνὰ μέσον, δῆλον ὡς ἐν τοῖς ἐναντίοις τὸ μεταξύ. τὸ δὲ συνεχὲς ὅπερ ἐχόμενόν τι. λέγω δὲ συνεχὲς ὅταν ταὐτὸ γένηται καὶ ἓν τὸ ἑκατέρου πέρας οἷς ἅπτονται καὶ συνέχονται, ὥστε δῆλον ὅτι τὸ συνεχὲς ἐν τούτοις ἐξ ὧν ἕν τι πέφυκε γίγνεσθαι κατὰ τὴν σύναψιν. καὶ ὅτι πρῶτον τὸ ἐφεξῆς, δῆλον (τὸ γὰρ ἐφεξῆς οὐχ ἅπτεται, τοῦτο δ' ἐφεξῆς· καὶ εἰ συνεχές, ἅπτεται, εἰ δ' ἅπτεται, οὔπω συνεχές· ἐν οἷς δὲ μὴ ἔστιν ἁφή, οὐκ ἔστι σύμφυσις ἐν τούτοις)· ὥστ' οὐκ ἔστι στιγμὴ μονάδι ταὐτόν· ταῖς μὲν γὰρ ὑπάρχει τὸ ἅπτεσθαι, ταῖς δ' οὔ, ἀλλὰ τὸ ἐφεξῆς· καὶ τῶν μὲν μεταξύ τι τῶν δ' οὔ.

Since all change is between opposites, and these are contraries and contradictories, and there is no middle term between contradictories, it is clear that what is between is found among contraries. The continuous is a kind of the contiguous. I call things continuous when the limits of each, at which they touch and are held together, become one and the same; so it is clear that continuity belongs to things out of which some one thing naturally comes to be through their contact. It is also clear that succession is primary. (For what is successive need not touch, but what touches is successive; and if something is continuous it touches, but if it touches it is not yet continuous; and where there is no touching there is no growing together.) So a point is not the same as a unit: points can touch, but units cannot—they can only be successive; and between points there is something, but not between units.

Book Lambda (XII)

Kinds of substance and the unmoved mover.

CHAPTER 1

GREEK

περὶ τῆς οὐσίας ἡ θεωρία· τῶν γὰρ οὐσιῶν αἱ ἀρχαὶ καὶ τὰ αἴτια ζητοῦνται. καὶ γὰρ εἰ ὡς ὅλον τι τὸ πᾶν, ἡ οὐσία πρῶτον μέρος· καὶ εἰ τῷ ἐφεξῆς, κἂν οὕτως πρῶτον ἡ οὐσία, εἶτα τὸ ποιόν, εἶτα τὸ ποσόν. ἅμα δὲ οὐδ' ὄντα ὡς εἰπεῖν ἁπλῶς ταῦτα, ἀλλὰ ποιότητες καὶ κινήσεις, ἢ καὶ τὸ οὐ λευκὸν καὶ τὸ οὐκ εὐθύ· λέγομεν γοῦν εἶναι καὶ ταῦτα, οἷον ἔστιν οὐ λευκόν. ἔτι οὐδὲν τῶν ἄλλων χωριστόν. μαρτυροῦσι δὲ καὶ οἱ ἀρχαῖοι ἔργῳ· τῆς γὰρ οὐσίας ἐζήτουν ἀρχὰς καὶ στοιχεῖα καὶ αἴτια.

ENGLISH

Our study is about substance, for it is the principles and causes of substances that we are seeking. For if the universe is a kind of whole, substance is its first part; and if it is a series, even so substance comes first, then quality, then quantity. At the same time, these others are not even beings in the unqualified sense, so to speak, but qualities and motions—or else the not-white and the not-straight would be beings too; at any rate we say that these also are, as in "it is not-white." Further, none of the others is separable. The ancients too bear witness to this in practice, for it was of substance that they sought the principles, elements, and causes.

οἱ μὲν οὖν νῦν τὰ καθόλου οὐσίας μᾶλλον τιθέασιν (τὰ γὰρ γένη καθόλου, ἃ φασιν ἀρχὰς καὶ οὐσίας εἶναι μᾶλλον διὰ τὸ λογικῶς ζητεῖν)· οἱ δὲ πάλαι τὰ καθ' ἕκαστα, οἷον πῦρ καὶ γῆν, ἀλλ' οὐ τὸ κοινόν, σῶμα. οὐσίαι δὲ τρεῖς, μία μὲν αἰσθητή—ἧς ἡ μὲν ἀΐδιος ἡ δὲ φθαρτή, ἣν πάντες ὁμολογοῦσιν, οἷον τὰ φυτὰ καὶ τὰ ζῷα [ἡ δ' ἀΐδιος]—ἧς ἀνάγκη τὰ στοιχεῖα λαβεῖν, εἴτε ἓν εἴτε πολλά· ἄλλη δὲ ἀκίνητος, καὶ ταύτην φασί τινες εἶναι χωριστήν, οἱ μὲν εἰς δύο διαιροῦντες, οἱ δὲ εἰς μίαν φύσιν τιθέντες τὰ εἴδη καὶ τὰ μαθηματικά, οἱ δὲ τὰ μαθηματικὰ μόνον τούτων. ἐκεῖναι μὲν δὴ φυσικῆς (μετὰ κινήσεως γάρ),
1069b αὕτη δὲ ἑτέρας, εἰ μηδεμία αὐτοῖς ἀρχὴ κοινή.

Thinkers today tend to posit universals as substances (for the genera are universal, and these they say are more truly principles and substances, because their approach to the inquiry is abstract and logical); the thinkers of old posited particular things—fire and earth, for instance—and not what is common to them, body. There are three kinds of substance. One is perceptible—and of this one kind is eternal and another perishable, the latter recognized by everyone, plants and animals, for instance—and of this we must grasp the elements, whether one or many. Another is unmovable, and this some say is separate: some divide it into two, others put the Forms and mathematical objects into one nature, and others recognize only the mathematical objects among these. The first two kinds belong to physics (for they involve motion);
1069b the third belongs to another science, if there is no principle common to them.

1069b ἡ δ' αἰσθητὴ οὐσία μεταβλητή. εἰ δ' ἡ μεταβολὴ ἐκ τῶν ἀντικειμένων ἢ τῶν μεταξύ, ἀντικειμένων δὲ μὴ πάντων (οὐ λευκὸν γὰρ ἡ φωνή) ἀλλ' ἐκ τοῦ ἐναντίου, ἀνάγκη ὑπεῖναί τι τὸ μεταβάλλον εἰς τὴν ἐναντίωσιν· οὐ γὰρ τὰ ἐναντία μεταβάλλει.

Perceptible substance is subject to change. Now if change is from opposites or from intermediates—not from all opposites, though (for a sound is not-white), but from the contrary—there must be something underlying that changes into the con-

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	trary state; for the contraries themselves do not change.

MATTER AND THE CONTRARIES

All change needs matter that persists and is potentially both contraries.

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ἔτι τὸ μὲν ὑπομένει, τὸ δ' ἐναντίον οὐχ ὑπομένει· ἔστιν ἄρα τι τρίτον παρὰ τὰ ἐναντία, ἡ ὕλη. εἰ δὴ αἱ μεταβολαὶ τέτταρες, ἢ κατὰ τὸ τί ἢ κατὰ τὸ ποῖον ἢ πόσον ἢ ποῦ, καὶ γένεσις μὲν ἡ ἁπλῆ καὶ φθορὰ ἡ κατὰ ⟨τὸ⟩ τόδε, αὔξησις δὲ καὶ φθίσις ἡ κατὰ τὸ ποσόν, ἀλλοίωσις δὲ ἡ κατὰ τὸ πάθος, φορὰ δὲ ἡ κατὰ τόπον, εἰς ἐναντιώσεις ἂν εἶεν τὰς καθ' ἕκαστον αἱ μεταβολαί.	Further, something persists, while the contrary does not persist. There is, then, some third thing besides the contraries: the matter. Now if changes are of four kinds—with respect to what a thing is, or its quality, or quantity, or where it is—and simple coming-to-be and passing away are change with respect to the "this," growth and diminution change with respect to quantity, alteration change with respect to an attribute, and locomotion change with respect to place, then the changes will be into the contrary states in each of these respects.
ἀνάγκη δὴ μεταβάλλειν τὴν ὕλην δυναμένην ἄμφω· ἐπεὶ δὲ διττὸν τὸ ὄν, μεταβάλλει πᾶν ἐκ τοῦ δυνάμει ὄντος εἰς τὸ ἐνεργείᾳ ὄν (οἷον ἐκ λευκοῦ δυνάμει εἰς τὸ ἐνεργείᾳ λευκόν, ὁμοίως δὲ καὶ ἐπ' αὐξήσεως καὶ φθίσεως), ὥστε οὐ μόνον κατὰ συμβεβηκὸς ἐνδέχεται γίγνεσθαι ἐκ μὴ ὄντος, ἀλλὰ καὶ ἐξ ὄντος γίγνεται πάντα, δυνάμει μέντοι ὄντος, ἐκ μὴ ὄντος δὲ ἐνεργείᾳ. καὶ τοῦτ' ἔστι τὸ Ἀναξαγόρου ἕν· βέλτιον γὰρ ἢ ὁμοῦ πάντα —καὶ Ἐμπεδοκλέους τὸ μῖγμα καὶ Ἀναξιμάνδρου, καὶ ὡς Δημόκριτός φησιν—"ἦν ὁμοῦ πάντα δυνάμει, ἐνεργείᾳ δ' οὔ"· ὥστε τῆς ὕλης ἂν εἶεν ἡμμένοι· πάντα δ' ὕλην ἔχει ὅσα μεταβάλλει, ἀλλ' ἑτέραν· καὶ τῶν ἀϊδίων ὅσα μὴ γενητὰ κινητὰ δὲ φορᾷ, ἀλλ' οὐ γενητὴν ἀλλὰ ποθὲν ποί.	The matter, then, that changes must be capable of both contraries. And since what is has two senses, everything changes from what is potentially to what is actually—from potentially white to actually white, for instance, and likewise in the case of growth and diminution. So not only can a thing come to be, accidentally, from what is not; all things also come to be from what is, though from what is potentially and is not actually. And this is the "one" of Anaxagoras; for instead of "all things together"—and the "mixture" of Empedocles and Anaximander, and what Democritus says—it is better to say "all things were together potentially, but not actually." So these thinkers would have been grasping at matter. All things that change have matter, but different kinds of matter; and of eternal things, those that do not come to be but are movable by locomotion have matter too—not matter for coming-to-be, but for moving from somewhere to somewhere.
ἀπορήσειε δ' ἄν τις ἐκ ποίου μὴ ὄντος ἡ γένεσις· τριχῶς γὰρ τὸ μὴ ὄν. εἰ δή τι ἔστι δυνάμει, ἀλλ' ὅμως οὐ τοῦ τυχόντος ἀλλ' ἕτερον ἐξ ἑτέρου· οὐδ' ἱκανὸν ὅτι ὁμοῦ πάντα χρήματα· διαφέρει γὰρ τῇ ὕλῃ, ἐπεὶ διὰ τί ἄπειρα ἐγένετο ἀλλ' οὐχ ἕν; ὁ γὰρ νοῦς εἷς, ὥστ' εἰ καὶ ἡ ὕλη μία, ἐκεῖνο ἐγένετο ἐνεργείᾳ οὗ ἡ ὕλη ἦν δυνάμει. τρία δὴ τὰ αἴτια καὶ τρεῖς αἱ ἀρχαί, δύο μὲν ἡ ἐναντίωσις, ἧς τὸ μὲν λόγος καὶ εἶδος τὸ δὲ στέρησις, τὸ δὲ τρίτον ἡ ὕλη.	One might raise the puzzle: from what sort of "what is not" does coming-to-be proceed? For "what is not" has three senses. If, then, something exists potentially, still it is not potentially any chance thing; different things come from different things. Nor is it enough to say that "all things were together," for they differ in their matter; otherwise why did infinitely many things come to be and not one? For intellect is one, so if the matter too were one, only that thing would have come to be in ac-

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	tuality which the matter was potentially. There are, then, three causes and three principles: two form the contrariety, of which one side is the account and form and the other is privation; the third is the matter.

NEITHER MATTER NOR FORM COMES TO BE

Each substance comes from something of the same kind; only intellect might survive the body.

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μετὰ ταῦτα ὅτι οὐ γίγνεται οὔτε ἡ ὕλη οὔτε τὸ εἶδος, λέγω δὲ τὰ ἔσχατα. πᾶν γὰρ μεταβάλλει τὶ καὶ ὑπό τινος καὶ εἴς τι· 1070a ὑφ' οὗ μέν, τοῦ πρώτου κινοῦντος· ὃ δέ, ἡ ὕλη· εἰς ὃ δέ, τὸ εἶδος. εἰς ἄπειρον οὖν εἶσιν, εἰ μὴ μόνον ὁ χαλκὸς γίγνεται στρογγύλος ἀλλὰ καὶ τὸ στρογγύλον ἢ ὁ χαλκός· ἀνάγκη δὴ στῆναι.—μετὰ ταῦτα ὅτι ἑκάστη ἐκ συνωνύμου γίγνεται οὐσία (τὰ γὰρ φύσει οὐσίαι καὶ τὰ ἄλλα). ἢ γὰρ τέχνῃ ἢ φύσει γίγνεται ἢ τύχῃ ἢ τῷ αὐτομάτῳ. ἡ μὲν οὖν τέχνη ἀρχὴ ἐν ἄλλῳ, ἡ δὲ φύσις ἀρχὴ ἐν αὐτῷ (ἄνθρωπος γὰρ ἄνθρωπον γεννᾷ), αἱ δὲ λοιπαὶ αἰτίαι στερήσεις τούτων.	Next, neither the matter nor the form comes to be —I mean the ultimate matter and form. For everything that changes is something, and is changed by something, and into something. 1070a That by which it is changed is the first mover; that which is changed is the matter; that into which it is changed is the form. So there would be an infinite regress if not only the bronze comes to be round but also the round, or the bronze, comes to be. There must, then, be a stopping point.—Next, each substance comes to be from something that shares its name and nature (for natural things and the others are substances). For things come to be by craft, by nature, by luck, or spontaneously. Craft is a principle in something other than the thing produced; nature is a principle in the thing itself (for a human being begets a human being); and the remaining causes are privations of these.
1070a οὐσίαι δὲ τρεῖς, ἡ μὲν ὕλη τόδε τι οὖσα τῷ φαίνεσθαι (ὅσα γὰρ ἁφῇ καὶ μὴ συμφύσει, ὕλη καὶ ὑποκείμενον), ἡ δὲ φύσις τόδε τι καὶ ἕξις τις εἰς ἥν· ἔτι τρίτη ἡ ἐκ τούτων ἡ καθ' ἕκαστα, οἷον Σωκράτης ἢ Καλλίας. ἐπὶ μὲν οὖν τινῶν τὸ τόδε τι οὐκ ἔστι παρὰ τὴν συνθετὴν οὐσίαν, οἷον οἰκίας τὸ εἶδος, εἰ μὴ ἡ τέχνη (οὐδ' ἔστι γένεσις καὶ φθορὰ τούτων, ἀλλ' ἄλλον τρόπον εἰσὶ καὶ οὐκ εἰσὶν οἰκία τε ἡ ἄνευ ὕλης καὶ ὑγίεια καὶ πᾶν τὸ κατὰ τέχνην), ἀλλ' εἴπερ, ἐπὶ τῶν φύσει· διὸ δὴ οὐ κακῶς Πλάτων ἔφη ὅτι εἴδη ἔστιν ὁπόσα φύσει, εἴπερ ἔστιν εἴδη ἄλλα τούτων ⟨οἷον πῦρ σὰρξ κεφαλή· ἅπαντα γὰρ ὕλη ἐστί, καὶ τῆς μάλιστ' οὐσίας ἡ τελευταία⟩.	There are three substances. There is the matter, which is a "this" by appearing to be one (for things that are one by contact and not by growing together are matter and underlying subject); there is the nature, a "this" and a state toward which coming-to-be proceeds; and third, there is the particular composed of these, Socrates or Callias, for instance. In some cases the "this" does not exist apart from the composite substance; the form of a house, for instance, does not, unless we mean the craft. (Nor is there coming-to-be and passing away of these forms; rather, the house without matter, and health, and everything that is produced by craft, are and are not in a different way.) If it does exist apart, it is in the case of natural things. That is why Plato was not wrong to say that there are Forms of as many things as there are by nature—if indeed there are Forms distinct from these things. (Fire, flesh, head: all these are matter, and the last is the matter of what is most fully substance.)

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τὰ μὲν οὖν κινοῦντα αἴτια ὡς προγεγενημένα ὄντα, τὰ δ' ὡς ὁ λόγος ἅμα. ὅτε γὰρ ὑγιαίνει ὁ ἄνθρωπος, τότε καὶ ἡ ὑγίεια ἔστιν, καὶ τὸ σχῆμα τῆς χαλκῆς σφαίρας ἅμα καὶ ἡ χαλκῆ σφαῖρα (εἰ δὲ καὶ ὕστερόν τι ὑπομένει, σκεπτέον· ἐπ' ἐνίων γὰρ οὐδὲν κωλύει, οἷον εἰ ἡ ψυχὴ τοιοῦτον, μὴ πᾶσα ἀλλ' ὁ νοῦς· πᾶσαν γὰρ ἀδύνατον ἴσως). φανερὸν δὴ ὅτι οὐδὲν δεῖ διά γε ταῦτ' εἶναι τὰς ἰδέας· ἄνθρωπος γὰρ ἄνθρωπον γεννᾷ, ὁ καθ' ἕκαστον τὸν τινά· ὁμοίως δὲ καὶ ἐπὶ τῶν τεχνῶν· ἡ γὰρ ἰατρικὴ τέχνη ὁ λόγος τῆς ὑγιείας ἐστίν.

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Moving causes exist beforehand, while causes in the sense of the account exist at the same time as what they cause. For when a human being is healthy, then health too exists; and the shape of the bronze sphere exists at the same time as the bronze sphere. (Whether anything also survives afterward must be considered; for in some cases nothing prevents it. The soul may be like this—not all of it, but the intellect; for presumably it is impossible for all of it to survive.) It is clear, then, that there is no need, on these grounds at least, for the Forms to exist. For a human being begets a human being, a particular individual a particular individual. Similarly with the crafts: the medical craft is the account of health.

THE SAME PRINCIPLES BY ANALOGY

All things have the same principles only by analogy: form, privation, matter and a mover.

GREEK

τὰ δ' αἴτια καὶ αἱ ἀρχαὶ ἄλλα ἄλλων ἔστιν ὥς, ἔστι δ' ὡς, ἂν καθόλου λέγῃ τις καὶ κατ' ἀναλογίαν, ταὐτὰ πάντων. ἀπορήσειε γὰρ ἄν τις πότερον ἕτεραι ἢ αἱ αὐταὶ ἀρχαὶ καὶ στοιχεῖα τῶν οὐσιῶν καὶ τῶν πρός τι, καὶ καθ' ἑκάστην δὴ τῶν κατηγοριῶν ὁμοίως. ἀλλ' ἄτοπον εἰ ταὐτὰ πάντων· ἐκ τῶν αὐτῶν γὰρ ἔσται τὰ πρός τι καὶ αἱ οὐσίαι. [1070b] τί οὖν τοῦτ' ἔσται; παρὰ γὰρ τὴν οὐσίαν καὶ τἆλλα τὰ κατηγορούμενα οὐδέν ἐστι κοινόν, πρότερον δὲ τὸ στοιχεῖον ἢ ὧν στοιχεῖον· ἀλλὰ μὴν οὐδ' ἡ οὐσία στοιχεῖον τῶν πρός τι, οὐδὲ τούτων οὐδὲν τῆς οὐσίας. ἔτι πῶς ἐνδέχεται πάντων εἶναι ταὐτὰ στοιχεῖα;

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In one sense the causes and principles are different for different things; in another sense, if one speaks universally and by analogy, they are the same for all. For one might raise the puzzle whether the principles and elements of substances and of relations are different or the same, and likewise for each of the categories. But it would be absurd if they were the same for all; for then relations and substances would come from the same elements. [1070b] What, then, would this element be? For besides substance and the other categories there is nothing common to them, and an element is prior to what it is an element of. But substance is not an element of relations, nor is any relation an element of substance. Further, how can all things have the same elements?

1070b οὐδὲν γὰρ οἷόν τ' εἶναι τῶν στοιχείων τῷ ἐκ στοιχείων συγκειμένῳ τὸ αὐτό, οἷον τῷ ΒΑ τὸ Β ἢ Α (οὐδὲ δὴ τῶν νοητῶν στοιχεῖόν ἐστιν, οἷον τὸ ὂν ἢ τὸ ἕν· ὑπάρχει γὰρ ταῦτα ἑκάστῳ καὶ τῶν συνθέτων). οὐδὲν ἄρ' ἔσται αὐτῶν οὔτ' οὐσία οὔτε πρός τι· ἀλλ' ἀναγκαῖον. οὐκ ἔστιν ἄρα πάντων ταὐτὰ στοιχεῖα.—ἢ ὥσπερ λέγομεν, ἔστι μὲν ὡς, ἔστι δ' ὡς οὔ, οἷον ἴσως τῶν αἰσθητῶν σωμάτων ὡς μὲν εἶδος τὸ θερμὸν καὶ ἄλλον τρόπον τὸ ψυχρὸν ἡ στέρησις, ὕλη δὲ τὸ δυνάμει ταῦτα πρῶτον καθ' αὑτό, οὐσίαι δὲ ταῦτά τε καὶ τὰ ἐκ τούτων, ὧν ἀρχαὶ ταῦτα, ἢ εἴ τι ἐκ θερμοῦ καὶ ψυχροῦ γίγνεται ἕν, οἷον σὰρξ ἢ ὀστοῦν· ἕτερον γὰρ ἀνάγκη ἐκείνων εἶναι τὸ γενόμενον.

For none of the elements can be the same as what is composed of elements—B or A the same as BA, for instance. (Nor, then, can any of the intelligibles, such as being or unity, be an element; for these belong to each thing, even to composites.) None of the elements, then, will be either a substance or a relation; but it must be one or the other. So all things do not have the same elements.—Or rather, as we say, in one sense they do and in another they do not. For example, perhaps the elements of perceptible bodies are, as form, the hot, and in another way the cold, which is the privation; and, as matter, what is primarily and in its

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own right potentially these. And substances are both these and the things composed of them, of which these are the principles, or any unity that comes to be from hot and cold, such as flesh or bone; for what comes to be must be different from its elements.

τούτων μὲν οὖν ταὐτὰ στοιχεῖα καὶ ἀρχαί (ἄλλων δ' ἄλλα), πάντων δὲ οὕτω μὲν εἰπεῖν οὐκ ἔστιν, τῷ ἀνάλογον δέ, ὥσπερ εἴ τις εἴποι ὅτι ἀρχαὶ εἰσὶ τρεῖς, τὸ εἶδος καὶ ἡ στέρησις καὶ ἡ ὕλη. ἀλλ' ἕκαστον τούτων ἕτερον περὶ ἕκαστον γένος ἐστίν, οἷον ἐν χρώματι λευκὸν μέλαν ἐπιφάνεια· φῶς σκότος ἀήρ, ἐκ δὲ τούτων ἡμέρα καὶ νύξ. ἐπεὶ δὲ οὐ μόνον τὰ ἐνυπάρχοντα αἴτια, ἀλλὰ καὶ τῶν ἐκτὸς οἷον τὸ κινοῦν, δῆλον ὅτι ἕτερον ἀρχὴ καὶ στοιχεῖον, αἴτια δ' ἄμφω, καὶ εἰς ταῦτα διαιρεῖται ἡ ἀρχή, τὸ δ' ὡς κινοῦν ἢ ἱστὰν ἀρχή τις καὶ οὐσία, ὥστε στοιχεῖα μὲν κατ' ἀναλογίαν τρία, αἰτίαι δὲ καὶ ἀρχαὶ τέτταρες· ἄλλο δ' ἐν ἄλλῳ, καὶ τὸ πρῶτον αἴτιον ὡς κινοῦν ἄλλο ἄλλῳ.

These things, then, have the same elements and principles (though different things have different ones); but one cannot say in this way that all things have the same ones, only by analogy—as if one said that there are three principles: the form, the privation, and the matter. But each of these is different for each genus: in color, for instance, they are white, black, and surface; and light, darkness, and air, from which come day and night. And since not only the constituents are causes but also certain external things, such as the mover, it is clear that principle and element are different. Both are causes, and principle is divided into these two; and what moves a thing or brings it to rest is a principle and a substance. So by analogy there are three elements, but four causes and principles. They are different in different things, and the first cause, as mover, is different for different things.

ὑγίεια, νόσος, σῶμα· τὸ κινοῦν ἰατρική. εἶδος, ἀταξία τοιαδί, πλίνθοι· τὸ κινοῦν οἰκοδομική [καὶ εἰς ταῦτα διαιρεῖται ἡ ἀρχή]. ἐπεὶ δὲ τὸ κινοῦν ἐν μὲν τοῖς φυσικοῖς ἀνθρώπῳ ἄνθρωπος, ἐν δὲ τοῖς ἀπὸ διανοίας τὸ εἶδος ἢ τὸ ἐναντίον, τρόπον τινὰ τρία αἴτια ἂν εἴη, ὡδὶ δὲ τέτταρα. ὑγίεια γάρ πως ἡ ἰατρική, καὶ οἰκίας εἶδος ἡ οἰκοδομική, καὶ ἄνθρωπος ἄνθρωπον γεννᾷ· ἔτι παρὰ ταῦτα τὸ ὡς πρῶτον πάντων κινοῦν πάντα.

Health, disease, body: the mover is the medical craft. Form, a certain disorder, bricks: the mover is the builder's craft. And since the mover, among natural things, is—for a human being—a human being, and among products of thought it is the form or its contrary, there would be in one way three causes, in another way four. For the medical craft is in a way health, and the builder's craft is the form of the house, and a human being begets a human being. Further, besides these there is what, as first of all things, moves all things.

ACTUALITY AND POTENTIALITY AS PRINCIPLES

Particulars have particular causes; universal causes do not exist.

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ἐπεὶ δ' ἐστὶ τὰ μὲν χωριστὰ τὰ δ' οὐ χωριστά, οὐσίαι ἐκεῖνα. [1071a] καὶ διὰ τοῦτο πάντων αἴτια ταὐτά, ὅτι τῶν οὐσιῶν ἄνευ οὐκ ἔστι τὰ πάθη καὶ αἱ κινήσεις. ἔπειτα ἔσται ταῦτα ψυχὴ ἴσως καὶ σῶμα, ἢ νοῦς καὶ ὄρεξις καὶ σῶμα.—ἔτι δ' ἄλλον τρόπον τῷ ἀνάλογον ἀρχαὶ αἱ αὐταί, οἷον ἐνέργεια καὶ δύναμις· ἀλλὰ καὶ ταῦτα ἄλλα τε ἄλλοις καὶ ἄλλως.

Since some things are separable and others not, the former are substances. [1071a] And for this reason the causes of all things are the same: because without substances there are no attributes and no motions. Further, these causes will presumably be soul and body, or intellect, desire, and body.—Again, in another way, by analogy, the principles are the same: actuality and potentiality, for in-

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	stance. But these too are different for different things and apply in different ways.
1071a ἐν ἐνίοις μὲν γὰρ τὸ αὐτὸ ὁτὲ μὲν ἐνεργείᾳ ἔστιν ὁτὲ δὲ δυνάμει, οἷον οἶνος ἢ σὰρξ ἢ ἄνθρωπος (πίπτει δὲ καὶ ταῦτα εἰς τὰ εἰρημένα αἴτια· ἐνεργείᾳ μὲν γὰρ τὸ εἶδος, ἐὰν ᾖ χωριστόν, καὶ τὸ ἐξ ἀμφοῖν στέρησις δέ, οἷον σκότος ἢ κάμνον, δυνάμει δὲ ἡ ὕλη· τοῦτο γάρ ἐστι τὸ δυνάμενον γίγνεσθαι ἄμφω)· ἄλλως δ' ἐνεργείᾳ καὶ δυνάμει διαφέρει ὧν μὴ ἔστιν ἡ αὐτὴ ὕλη, ὧν ⟨ἐνίων⟩ οὐκ ἔστι τὸ αὐτὸ εἶδος ἀλλ' ἕτερον, ὥσπερ ἀνθρώπου αἴτιον τά τε στοιχεῖα, πῦρ καὶ γῆ ὡς ὕλη καὶ τὸ ἴδιον εἶδος, καὶ ἔτι τι ἄλλο ἔξω οἷον ὁ πατήρ, καὶ παρὰ ταῦτα ὁ ἥλιος καὶ ὁ λοξὸς κύκλος, οὔτε ὕλη ὄντα οὔτ' εἶδος οὔτε στέρησις οὔτε ὁμοειδὲς ἀλλὰ κινοῦντα.	In some cases the same thing exists sometimes actually and sometimes potentially—wine, for instance, or flesh, or a human being. (These too fall under the causes already described: the form exists actually, if it is separable, and so does the composite of form and matter, and the privation, such as darkness or the sick; while the matter exists potentially, since this is what is capable of becoming both.) But actuality and potentiality differ in another way in the case of things that do not have the same matter, some of which do not have the same form either, but a different one. Thus the causes of a human being are the elements, fire and earth, as matter; his own proper form; further, something external, such as his father; and besides these the sun and the ecliptic, which are neither matter nor form nor privation nor of the same form, but are movers.[1]
ἔτι δὲ ὁρᾶν δεῖ ὅτι τὰ μὲν καθόλου ἔστιν εἰπεῖν, τὰ δ' οὔ. πάντων δὴ πρῶται ἀρχαὶ τὸ ἐνεργείᾳ πρῶτον τοδὶ καὶ ἄλλο ὃ δυνάμει. ἐκεῖνα μὲν οὖν τὰ καθόλου οὐκ ἔστιν· ἀρχὴ γὰρ τὸ καθ' ἕκαστον τῶν καθ' ἕκαστον· ἄνθρωπος μὲν γὰρ ἀνθρώπου καθόλου, ἀλλ' οὐκ ἔστιν οὐδείς, ἀλλὰ Πηλεὺς Ἀχιλλέως σοῦ δὲ ὁ πατήρ, καὶ τοδὶ τὸ Β τουδὶ τοῦ ΒΑ, ὅλως δὲ τὸ Β τοῦ ἁπλῶς ΒΑ.	Further, one must see that some things can be stated universally and others cannot. The first principles of all things are the first thing that is actually a "this," and another thing that is potentially. Now those universals do not exist; for the principle of particulars is a particular. Human being in general would be the principle of human being in general, but there is no such human being. Rather, Peleus is the principle of Achilles, and your father of you, and this B of this BA, while B in general is the principle of BA in general.
ἔπειτα, εἰ δὴ τὰ τῶν οὐσιῶν, ἄλλα δὲ ἄλλων αἴτια καὶ στοιχεῖα, ὥσπερ ἐλέχθη, τῶν μὴ ἐν ταὐτῷ γένει, χρωμάτων ψόφων οὐσιῶν ποσότητος, πλὴν τῷ ἀνάλογον· καὶ τῶν ἐν ταὐτῷ εἴδει ἕτερα, οὐκ εἴδει ἀλλ' ὅτι τῶν καθ' ἕκαστον ἄλλο, ἥ τε σὴ ὕλη καὶ τὸ εἶδος καὶ τὸ κινῆσαν καὶ ἡ ἐμή, τῷ καθόλου δὲ λόγῳ ταὐτά.	Next, if the causes of substances are the causes of all things, still different things have different causes and elements, as was said: things not in the same genus—colors, sounds, substances, quantity—have different ones, except by analogy; and things in the same species have different ones, not different in species, but in that the causes of different particulars are different: your matter and form and moving cause are different from mine, though in their universal account they are the same.
τὸ δὲ ζητεῖν τίνες ἀρχαὶ ἢ στοιχεῖα τῶν οὐσιῶν καὶ πρός τι καὶ ποιῶν, πότερον αἱ αὐταὶ ἢ ἕτεραι, δῆλον ὅτι πολλαχῶς γε λεγομένων ἔστιν ἑκάστου, διαιρεθέντων δὲ οὐ ταὐτὰ ἀλλ' ἕτερα, πλὴν ὠδὶ καὶ πάντων, ὠδὶ μὲν ταὐτὰ ἢ τὸ ἀνάλογον, ὅτι ὕλη, εἶδος, στέρησις, τὸ κινοῦν, καὶ	As for inquiring what the principles or elements of substances, relations, and qualities are, and whether they are the same or different: clearly, when the terms are used in many senses, each has them; but when the senses are distinguished, they

1 The ecliptic (literally "the slanting circle") is the sun's yearly path against the stars; its tilt brings the seasons, and so the cycle of generation.

	GREEK	ENGLISH
	ὡδὶ τὰ τῶν οὐσιῶν αἴτια ὡς αἴτια πάντων, ὅτι ἀναιρεῖται ἀναιρουμένων· ἔτι τὸ πρῶτον ἐντελεχείᾳ· ὡδὶ δὲ ἕτερα πρῶτα ὅσα τὰ ἐναντία ἃ μήτε ὡς γένη λέγεται μήτε πολλαχῶς λέγεται· καὶ ἔτι αἱ ὕλαι. [1071b] τίνες μὲν οὖν αἱ ἀρχαὶ τῶν αἰσθητῶν καὶ πόσαι, καὶ πῶς αἱ αὐταὶ καὶ πῶς ἕτεραι, εἴρηται.	are not the same but different, except that in a certain way they are the same for all. In one way they are the same, or analogous: matter, form, privation, the mover. And in one way the causes of substances are causes of all things, because when substances are removed, everything is removed. Further, what is first is in actuality. But in another way the first causes are different: all the contraries that are neither spoken of as genera nor spoken of in many senses; and further, the kinds of matter. [1071b] We have said, then, what the principles of perceptible things are and how many, and in what way they are the same and in what way different.

AN ETERNAL UNMOVABLE SUBSTANCE

Since motion and time are eternal, there must be a substance whose very being is actuality.

	GREEK	ENGLISH
1071b	ἐπεὶ δ' ἦσαν τρεῖς οὐσίαι, δύο μὲν αἱ φυσικαὶ μία δ' ἡ ἀκίνητος, περὶ ταύτης λεκτέον ὅτι ἀνάγκη εἶναι ἀΐδιόν τινα οὐσίαν ἀκίνητον. αἵ τε γὰρ οὐσίαι πρῶται τῶν ὄντων, καὶ εἰ πᾶσαι φθαρταί, πάντα φθαρτά· ἀλλ' ἀδύνατον κίνησιν ἢ γενέσθαι ἢ φθαρῆναι (ἀεὶ γὰρ ἦν), οὐδὲ χρόνον. οὐ γὰρ οἷόν τε τὸ πρότερον καὶ ὕστερον εἶναι μὴ ὄντος χρόνου· καὶ ἡ κίνησις ἄρα οὕτω συνεχὴς ὥσπερ καὶ ὁ χρόνος· ἢ γὰρ τὸ αὐτὸ ἢ κινήσεώς τι πάθος. κίνησις δ' οὐκ ἔστι συνεχὴς ἀλλ' ἢ ἡ κατὰ τόπον, καὶ ταύτης ἡ κύκλῳ.	Since there were three kinds of substance, two of them natural and one unmovable, we must speak about the last, and show that there must be some eternal, unmovable substance. For substances are the first of the things that are, and if they are all perishable, everything is perishable. But motion cannot come to be or pass away (for it always was), nor can time. For there cannot be a before and after if there is no time. So motion too is continuous in the same way as time is; for time is either the same thing as motion or an attribute of motion. But no motion is continuous except motion in place, and of this, circular motion.
	ἀλλὰ μὴν εἰ ἔστι κινητικὸν ἢ ποιητικόν, μὴ ἐνεργοῦν δέ τι, οὐκ ἔσται κίνησις· ἐνδέχεται γὰρ τὸ δύναμιν ἔχον μὴ ἐνεργεῖν. οὐθὲν ἄρα ὄφελος οὐδ' ἐὰν οὐσίας ποιήσωμεν ἀϊδίους, ὥσπερ οἱ τὰ εἴδη, εἰ μή τις δυναμένη ἐνέσται ἀρχὴ μεταβάλλειν· οὐ τοίνυν οὐδ' αὕτη ἱκανή, οὐδ' ἄλλη οὐσία παρὰ τὰ εἴδη· εἰ γὰρ μὴ ἐνεργήσει, οὐκ ἔσται κίνησις. ἔτι οὐδ' εἰ ἐνεργήσει, ἡ δ' οὐσία αὐτῆς δύναμις· οὐ γὰρ ἔσται κίνησις ἀΐδιος· ἐνδέχεται γὰρ τὸ δυνάμει ὂν μὴ εἶναι. δεῖ ἄρα εἶναι ἀρχὴν τοιαύτην ἧς ἡ οὐσία ἐνέργεια. ἔτι τοίνυν ταύτας δεῖ τὰς οὐσίας εἶναι ἄνευ ὕλης· ἀϊδίους γὰρ δεῖ, εἴπερ γε καὶ ἄλλο τι ἀΐδιον. ἐνέργεια ἄρα.	But if there is something capable of moving things or acting on them, but not actually doing so, there will be no motion; for what has a capacity need not exercise it. There is no use, then, in positing eternal substances, as those who posit the Forms do, unless there is in them some principle capable of causing change. Nor is even this enough, nor another substance besides the Forms; for if it is not active, there will be no motion. Further, even if it is active, it is not enough if its substance is potentiality; for then there will be no eternal motion, since what is potentially may not be. There must, then, be a principle of this kind whose very substance is actuality. Further, these substances must be without matter; for they must be eternal, if anything else is eternal. So they must be actuality.

GREEK

καίτοι ἀπορία· δοκεῖ γὰρ τὸ μὲν ἐνεργοῦν πᾶν δύνασθαι τὸ δὲ δυνάμενον οὐ πᾶν ἐνεργεῖν, ὥστε πρότερον εἶναι τὴν δύναμιν. ἀλλὰ μὴν εἰ τοῦτο, οὐθὲν ἔσται τῶν ὄντων· ἐνδέχεται γὰρ δύνασθαι μὲν εἶναι μήπω δ' εἶναι. καίτοι εἰ ὡς λέγουσιν οἱ θεολόγοι οἱ ἐκ νυκτὸς γεννῶντες, ἢ ὡς οἱ φυσικοὶ ὁμοῦ πάντα χρήματά φασι, τὸ αὐτὸ ἀδύνατον. πῶς γὰρ κινηθήσεται, εἰ μὴ ἔσται ἐνεργείᾳ τι αἴτιον; οὐ γὰρ ἥ γε ὕλη κινήσει αὐτὴ ἑαυτήν, ἀλλὰ τεκτονική, οὐδὲ τὰ ἐπιμήνια οὐδ' ἡ γῆ, ἀλλὰ τὰ σπέρματα καὶ ἡ γονή. διὸ ἔνιοι ποιοῦσιν ἀεὶ ἐνέργειαν, οἷον Λεύκιππος καὶ Πλάτων· ἀεὶ γὰρ εἶναί φασι κίνησιν. ἀλλὰ διὰ τί καὶ τίνα οὐ λέγουσιν, οὐδ', ⟨εἰ⟩ ὡδὶ ⟨ἢ⟩ ὡδί, τὴν αἰτίαν.

ENGLISH

Yet there is a puzzle. It seems that everything that acts is capable of acting, but not everything capable of acting acts, so that potentiality would be prior. But if so, none of the things that are would exist; for a thing may be capable of being and yet not yet be. And yet if things are as the theologians say, who generate everything from Night, or as the natural philosophers say, that "all things were together," the same impossible result follows. For how will anything be moved, if there is no cause in actuality? Matter will certainly not move itself—the carpenter's craft must move it; nor will menstrual fluid or earth move themselves—seeds and semen must move them. That is why some thinkers, Leucippus and Plato for instance, posit eternal activity; for they say there is always motion. But why there is, and what motion it is, they do not say; nor, if it moves this way or that, do they give the cause.[2]

οὐδὲν γὰρ ὡς ἔτυχε κινεῖται, ἀλλὰ δεῖ τι ἀεὶ ὑπάρχειν, ἔσπερ νῦν φύσει μὲν ὡδί, βίᾳ δὲ ἢ ὑπὸ νοῦ ἢ ἄλλου ὡδί. (εἶτα ποία πρώτη; διαφέρει γὰρ ἀμήχανον ὅσον). ἀλλὰ μὴν οὐδὲ Πλάτωνί γε οἷόν τε λέγειν ἣν οἴεται ἐνίοτε ἀρχὴν εἶναι, [1072a] τὸ αὐτὸ ἑαυτὸ κινοῦν· ὕστερον γὰρ καὶ ἅμα τῷ οὐρανῷ ἡ ψυχή, ὡς φησίν. τὸ μὲν δὴ δύναμιν οἴεσθαι ἐνεργείας πρότερον ἔστι μὲν ὡς καλῶς ἔστι δ' ὡς οὔ (εἴρηται δὲ πῶς)· ὅτι δ' ἐνέργεια πρότερον, μαρτυρεῖ Ἀναξαγόρας (ὁ γὰρ νοῦς ἐνέργεια) καὶ Ἐμπεδοκλῆς φιλίαν καὶ τὸ νεῖκος, καὶ οἱ ἀεὶ λέγοντες κίνησιν εἶναι, ὥσπερ Λεύκιππος· ὥστ' οὐκ ἦν ἄπειρον χρόνον χάος ἢ νύξ, ἀλλὰ ταὐτὰ ἀεὶ ἢ περιόδῳ ἢ ἄλλως, εἴπερ πρότερον ἐνέργεια δυνάμεως.

For nothing is moved at random; there must always be something present to move it, just as now a thing moves in one way by nature and in another by force, or by intellect, or by something else. (Then which kind of motion is primary? For this makes an enormous difference.) Nor can Plato, for his part, name as the principle what he sometimes thinks is the principle, [1072a] what moves itself; for the soul is later than the heavens and comes into being together with them, as he says. To think that potentiality is prior to actuality is right in one sense and not in another; we have said how. That actuality is prior is attested by Anaxagoras (for intellect is actuality), and by Empedocles with his Love and Strife, and by those who say there is always motion, such as Leucippus. So there was not chaos or night for an infinite time; rather, the same things have always existed, either in a cycle or in some other way, if actuality is prior to potentiality.

1072a εἰ δὴ τὸ αὐτὸ ἀεὶ περιόδῳ, δεῖ τι ἀεὶ μένειν ὡσαύτως ἐνεργοῦν. εἰ δὲ μέλλει γένεσις καὶ φθορὰ εἶναι, ἄλλο δεῖ εἶναι ἀεὶ ἐνεργοῦν ἄλλως καὶ ἄλλως. ἀνάγκη ἄρα ὡδὶ μὲν καθ' αὑτὸ ἐνεργεῖν ὡδὶ δὲ κατ' ἄλλο· ἤτοι ἄρα καθ' ἕτερον ἢ κατὰ τὸ πρῶτον. ἀνάγκη δὴ κατὰ τοῦτο· πάλιν γὰρ ἐκεῖνο αὐτῷ τε αἴτιον κἀκείνῳ. οὐκοῦν βέλτιον τὸ πρῶτον· καὶ γὰρ αἴτιον ἦν ἐκεῖνο τοῦ ἀεὶ ὡσαύτως· τοῦ δ' ἄλλως ἕτερον, τοῦ δ' ἀεὶ ἄλλως ἄμφω δηλονότι. οὐκοῦν

If, then, the same thing always exists in a cycle, something must always remain, acting in the same way. And if there is to be coming-to-be and passing away, there must be something else that is always acting, now in one way and now in another. This must, then, act in one way in its own right and in another in virtue of something else—either of a third thing or of the first. It must be in virtue

2 The "theologians" are early poets such as Hesiod and Orpheus, whose accounts of the world's origin began from Night or Chaos.

GREEK	ENGLISH
οὕτως καὶ ἔχουσιν αἱ κινήσεις. τί οὖν ἄλλας δεῖ ζητεῖν ἀρχάς;	of the first; for otherwise that third thing would in turn be the cause both of the second and of itself. So it is better to say the first; for it was the cause of what is always the same, the other the cause of what varies, and both together, clearly, the cause of what always varies. And this is in fact how the motions behave. Why, then, should we look for other principles?

THE UNMOVED MOVER

The first mover moves as an object of love; its life is thinking, and it is the god.

GREEK	ENGLISH
ἐπεὶ δ' οὕτω τ' ἐνδέχεται, καὶ εἰ μὴ οὕτως, ἐκ νυκτὸς ἔσται καὶ ὁμοῦ πάντων καὶ ἐκ μὴ ὄντος, λύοιτ' ἂν ταῦτα, καὶ ἔστι τι ἀεὶ κινούμενον κίνησιν ἄπαυστον, αὕτη δ' ἡ κύκλῳ (καὶ τοῦτο οὐ λόγῳ μόνον ἀλλ' ἔργῳ δῆλον), ὥστ' ἀΐδιος ἂν εἴη ὁ πρῶτος οὐρανός. ἔστι τοίνυν τι καὶ ὃ κινεῖ. ἐπεὶ δὲ τὸ κινούμενον καὶ κινοῦν [καὶ] μέσον, †τοίνυν† ἔστι τι ὃ οὐ κινούμενον κινεῖ, ἀΐδιον καὶ οὐσία καὶ ἐνέργεια οὖσα. κινεῖ δὲ ὧδε τὸ ὀρεκτὸν καὶ τὸ νοητόν· κινεῖ οὐ κινούμενα. τούτων τὰ πρῶτα τὰ αὐτά. ἐπιθυμητὸν μὲν γὰρ τὸ φαινόμενον καλόν, βουλητὸν δὲ πρῶτον τὸ ὂν καλόν· ὀρεγόμεθα δὲ διότι δοκεῖ μᾶλλον ἢ δοκεῖ διότι ὀρεγόμεθα· ἀρχὴ γὰρ ἡ νόησις.	Since this is a possible account, and if it were not so, things would come from night, and from "all things together," and from what is not, these difficulties may be considered solved. There is something that is always moved with an unceasing motion, and this motion is circular (this is clear not only from argument but from the facts); so the first heaven would be eternal. There is, then, also something that moves it. And since what is moved and moves is intermediate, there is something that moves without being moved, being eternal, substance, and actuality. The object of desire and the object of thought move in this way: they move without being moved. The primary objects of desire and of thought are the same. For the object of appetite is what appears fine, while the primary object of wish is what is fine. And we desire something because it seems fine, rather than its seeming fine because we desire it; for thinking is the starting point.[3]
νοῦς δὲ ὑπὸ τοῦ νοητοῦ κινεῖται, νοητὴ δὲ ἡ ἑτέρα συστοιχία καθ' αὑτήν· καὶ ταύτης ἡ οὐσία πρώτη, καὶ ταύτης ἡ ἁπλῆ καὶ κατ' ἐνέργειαν (ἔστι δὲ τὸ ἓν καὶ τὸ ἁπλοῦν οὐ τὸ αὐτό· τὸ μὲν γὰρ ἓν μέτρον σημαίνει, τὸ δὲ ἁπλοῦν πὼς ἔχον αὐτό). ἀλλὰ μὴν καὶ τὸ καλὸν καὶ τὸ δι' αὐτὸ αἱρετὸν ἐν τῇ αὐτῇ συστοιχίᾳ· καὶ ἔστιν ἄριστον ἀεὶ ἢ ἀνάλογον τὸ πρῶτον. [1072b] ὅτι δ' ἔστι τὸ οὗ ἕνεκα ἐν τοῖς ἀκινήτοις, ἡ διαίρεσις δηλοῖ· ἔστι γὰρ τινὶ τὸ οὗ ἕνεκα 〈καὶ〉 τινός, ὧν τὸ μὲν ἔστι τὸ δ' οὐκ ἔστι. κινεῖ δὴ ὡς ἐρώμενον, κινούμενα δὲ τἆλλα κινεῖ.	Intellect is moved by the object of thought, and one of the two columns of opposites is in its own right the object of thought. In this column substance is first, and among substances the one that is simple and exists in actuality. (The one and the simple are not the same: "one" signifies a measure, while "simple" signifies that the thing itself is in a certain state.) But the fine, too, and what is choiceworthy for its own sake, are in the same column; and what is first is always best, or analogous to the best. [1072b] That the "for the sake of which" is found among unmovable things is shown by a distinction: "that for the sake of which" is either the one for whose good something is done or the goal at

3 One word of the Greek here is corrupt; the sense is not in doubt.

GREEK

ENGLISH

which it aims, and of these the latter can exist among unmovable things but the former cannot. It causes motion, then, as something loved, and it is by being moved that the other things cause motion.

1072b εἰ μὲν οὖν τι κινεῖται, ἐνδέχεται καὶ ἄλλως ἔχειν, ὥστ' εἰ [ἡ] φορὰ πρώτη ἡ ἐνέργειά ἐστιν, ᾗ κινεῖται ταύτῃ γε ἐνδέχεται ἄλλως ἔχειν, κατὰ τόπον, καὶ εἰ μὴ κατ' οὐσίαν· ἐπεὶ δὲ ἔστι τι κινοῦν αὐτὸ ἀκίνητον ὄν, ἐνεργείᾳ ὄν, τοῦτο οὐκ ἐνδέχεται ἄλλως ἔχειν οὐδαμῶς. φορὰ γὰρ ἡ πρώτη τῶν μεταβολῶν, ταύτης δὲ ἡ κύκλῳ· ταύτην δὲ τοῦτο κινεῖ. ἐξ ἀνάγκης ἄρα ἐστὶν ὄν· καὶ ᾗ ἀνάγκῃ, καλῶς, καὶ οὕτως ἀρχή. τὸ γὰρ ἀναγκαῖον τοσαυταχῶς, τὸ μὲν βίᾳ ὅτι παρὰ τὴν ὁρμήν, τὸ δὲ οὗ οὐκ ἄνευ τὸ εὖ, τὸ δὲ μὴ ἐνδεχόμενον ἄλλως ἀλλ' ἁπλῶς.—ἐκ τοιαύτης ἄρα ἀρχῆς ἤρτηται ὁ οὐρανὸς καὶ ἡ φύσις.

If, then, something is moved, it can be otherwise than it is. So if its actuality is the primary locomotion, then insofar as it is moved, in this respect at least it can be otherwise—in place, even if not in substance. But since there is something that moves while itself being unmoved, existing in actuality, this cannot be otherwise in any way at all. For locomotion is the first of the changes, and of locomotion, circular motion; and this is the motion that it causes. It exists, then, of necessity; and insofar as it exists of necessity, it exists in a fine way, and it is in this way a principle. For "necessary" has these senses: what is by force, because it goes against impulse; what is required for the good; and what cannot be otherwise but is so without qualification.—On such a principle, then, the heavens and nature depend.

διαγωγὴ δ' ἐστὶν οἵα ἡ ἀρίστη μικρὸν χρόνον ἡμῖν (οὕτω γὰρ ἀεὶ ἐκεῖνο· ἡμῖν μὲν γὰρ ἀδύνατον), ἐπεὶ καὶ ἡδονὴ ἡ ἐνέργεια τούτου (καὶ διὰ τοῦτο ἐγρήγορσις αἴσθησις νόησις ἥδιστον, ἐλπίδες δὲ καὶ μνῆμαι διὰ ταῦτα). ἡ δὲ νόησις ἡ καθ' αὑτὴν τοῦ καθ' αὑτὸ ἀρίστου, καὶ ἡ μάλιστα τοῦ μάλιστα. αὑτὸν δὲ νοεῖ ὁ νοῦς κατὰ μετάληψιν τοῦ νοητοῦ· νοητὸς γὰρ γίγνεται θιγγάνων καὶ νοῶν, ὥστε ταὐτὸν νοῦς καὶ νοητόν. τὸ γὰρ δεκτικὸν τοῦ νοητοῦ καὶ τῆς οὐσίας νοῦς, ἐνεργεῖ δὲ ἔχων, ὥστ' ἐκείνου μᾶλλον τοῦτο ὃ δοκεῖ ὁ νοῦς θεῖον ἔχειν, καὶ ἡ θεωρία τὸ ἥδιστον καὶ ἄριστον. εἰ οὖν οὕτως εὖ ἔχει, ὡς ἡμεῖς ποτέ, ὁ θεὸς ἀεί, θαυμαστόν· εἰ δὲ μᾶλλον, ἔτι θαυμασιώτερον. ἔχει δὲ ὧδε.

Its way of life is like the best that we enjoy for a short time. For it is always in this state (which for us is impossible), since its activity is also pleasure. (That is why being awake, perceiving, and thinking are most pleasant, and hopes and memories are pleasant because of these.) Thinking in its own right is of what is best in its own right, and the highest thinking is of what is highest. Intellect thinks itself by sharing in the object of thought; for it becomes an object of thought by touching and thinking its objects, so that intellect and the object of thought are the same. For what is receptive of the object of thought, that is, of the substance, is intellect, and it is active when it possesses its object. So it is the possessing rather than the receptivity that seems to be the divine element in intellect, and contemplation is what is most pleasant and best. If, then, the god is always in that good state in which we sometimes are, this is wonderful; and if in a better state, more wonderful still. And that is the state it is in.

καὶ ζωὴ δέ γε ὑπάρχει· ἡ γὰρ νοῦ ἐνέργεια ζωή, ἐκεῖνος δὲ ἡ ἐνέργεια· ἐνέργεια δὲ ἡ καθ' αὑτὴν ἐκείνου ζωὴ ἀρίστη καὶ ἀΐδιος. φαμὲν δὴ τὸν θεὸν εἶναι ζῷον ἀΐδιον ἄριστον, ὥστε ζωὴ καὶ αἰὼν συνεχὴς καὶ ἀΐδιος ὑπάρχει τῷ θεῷ· τοῦτο γὰρ ὁ θεός. ὅσοι δὲ ὑπολαμβάνουσιν, ὥσπερ οἱ Πυθαγόρειοι καὶ Σπεύσιππος τὸ κάλλιστον καὶ ἄριστον μὴ

Life, too, belongs to it; for the activity of intellect is life, and the god is that activity; and the god's activity in its own right is life that is best and eternal. We say, then, that the god is a living being, eternal and best, so that life and an unbroken and eternal existence belong to the god; for this is

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ἐν ἀρχῇ εἶναι, διὰ τὸ καὶ τῶν φυτῶν καὶ τῶν ζῴων τὰς ἀρχὰς αἴτια μὲν εἶναι τὸ δὲ καλὸν καὶ τέλειον ἐν τοῖς ἐκ τούτων, οὐκ ὀρθῶς οἴονται. τὸ γὰρ σπέρμα ἐξ ἑτέρων ἐστὶ προτέρων τελείων, καὶ τὸ πρῶτον οὐ σπέρμα ἐστὶν ἀλλὰ τὸ τέλειον· [1073a] οἷον πρότερον ἄνθρωπον ἂν φαίη τις εἶναι τοῦ σπέρματος, οὐ τὸν ἐκ τούτου γενόμενον ἀλλ' ἕτερον ἐξ οὗ τὸ σπέρμα.	what the god is. Those who suppose, as the Pythagoreans and Speusippus do, that the most beautiful and best is not present at the beginning —because the beginnings of plants and animals are causes, while beauty and completeness are in what comes from them—are mistaken. For the seed comes from other, prior beings that are complete, and what is first is not the seed but the complete being. [1073a] One would say, for instance, that a human being is prior to the seed—not the one that comes from it, but another, from whom the seed comes.
1073a ὅτι μὲν οὖν ἔστιν οὐσία τις ἀΐδιος καὶ ἀκίνητος καὶ κεχωρισμένη τῶν αἰσθητῶν, φανερὸν ἐκ τῶν εἰρημένων· δέδεικται δὲ καὶ ὅτι μέγεθος οὐδὲν ἔχειν ἐνδέχεται ταύτην τὴν οὐσίαν ἀλλ' ἀμερὴς καὶ ἀδιαίρετός ἐστιν (κινεῖ γὰρ τὸν ἄπειρον χρόνον, οὐδὲν δ' ἔχει δύναμιν ἄπειρον πεπερασμένον· ἐπεὶ δὲ πᾶν μέγεθος ἢ ἄπειρον ἢ πεπερασμένον, πεπερασμένον μὲν διὰ τοῦτο οὐκ ἂν ἔχοι μέγεθος, ἄπειρον δ' ὅτι ὅλως οὐκ ἔστιν οὐδὲν ἄπειρον μέγεθος)· ἀλλὰ μὴν καὶ ὅτι ἀπαθὲς καὶ ἀναλλοίωτον· πᾶσαι γὰρ αἱ ἄλλαι κινήσεις ὕστεραι τῆς κατὰ τόπον. ταῦτα μὲν οὖν δῆλα διότι τοῦτον ἔχει τὸν τρόπον.	It is clear, then, from what has been said, that there is a substance that is eternal, unmovable, and separate from perceptible things. It has also been shown that this substance cannot have any magnitude, but is without parts and indivisible. (For it causes motion for an infinite time, and nothing finite has infinite power. And since every magnitude is either infinite or finite, it could not have finite magnitude for this reason, and it could not have infinite magnitude because there is no infinite magnitude at all.) Further, it has been shown to be impassive and unalterable; for all the other motions are posterior to motion in place. It is clear, then, why these things are as they are.

HOW MANY UNMOVED MOVERS?

Astronomy suggests fifty-five or forty-seven heavenly spheres, each with its own unmoved mover.

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πότερον δὲ μίαν θετέον τὴν τοιαύτην οὐσίαν ἢ πλείους, καὶ πόσας, δεῖ μὴ λανθάνειν, ἀλλὰ μεμνῆσθαι καὶ τὰς τῶν ἄλλων ἀποφάσεις, ὅτι περὶ πλήθους οὐθὲν εἰρήκασιν ὅ τι καὶ σαφὲς εἰπεῖν. ἡ μὲν γὰρ περὶ τὰς ἰδέας ὑπόληψις οὐδεμίαν ἔχει σκέψιν ἰδίαν (ἀριθμοὺς γὰρ λέγουσι τὰς ἰδέας οἱ λέγοντες ἰδέας, περὶ δὲ τῶν ἀριθμῶν ὁτὲ μὲν ὡς περὶ ἀπείρων λέγουσιν ὁτὲ δὲ ὡς μέχρι τῆς δεκάδος ὡρισμένων· δι' ἣν δ' αἰτίαν τοσοῦτον τὸ πλῆθος τῶν ἀριθμῶν, οὐδὲν λέγεται μετὰ σπουδῆς ἀποδεικτικῆς)· ἡμῖν δ' ἐκ τῶν ὑποκειμένων καὶ διωρισμένων λεκτέον.	Whether we should posit one such substance or more than one, and if more, how many, is a question we must not neglect. We must also remember the pronouncements of others, and note that they have said nothing about the number of these substances that can even be stated clearly. The theory of Forms contains no special inquiry into the matter. (Those who speak of Forms say the Forms are numbers, and they speak of the numbers sometimes as infinite, sometimes as limited to ten; but why there should be just so many numbers they say nothing with demonstrative rigor.) We, however, must discuss the question on the basis of the premises and distinctions we have laid down.
ἡ μὲν γὰρ ἀρχὴ καὶ τὸ πρῶτον τῶν ὄντων ἀκίνητον καὶ καθ' αὐτὸ καὶ κατὰ συμβεβηκός, κινοῦν δὲ τὴν πρώτην ἀΐδιον καὶ μίαν κίνησιν· ἐπεὶ δὲ τὸ κινούμενον ἀνάγκη ὑπό τινος κινεῖσθαι, καὶ τὸ πρῶτον κινοῦν ἀκίνητον εἶναι	The principle and first of the things that are is unmovable, both in its own right and accidentally, and it causes the primary motion, which is eternal and one. Now what is moved must be moved by

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καθ' αὑτό, καὶ τὴν ἀΐδιον κίνησιν ὑπὸ ἀϊδίου κινεῖσθαι καὶ τὴν μίαν ὑφ' ἑνός, ὁρῶμεν δὲ παρὰ τὴν τοῦ παντὸς τὴν ἁπλῆν φοράν, ἣν κινεῖν φαμὲν τὴν πρώτην οὐσίαν καὶ ἀκίνητον, ἄλλας φορὰς οὔσας τὰς τῶν πλανήτων ἀϊδίους (ἀΐδιον γὰρ καὶ ἄστατον τὸ κύκλῳ σῶμα· δέδεικται δ' ἐν τοῖς φυσικοῖς περὶ τούτων), ἀνάγκη καὶ τούτων ἑκάστην τῶν φορῶν ὑπ' ἀκινήτου τε κινεῖσθαι καθ' αὑτὴν καὶ ἀϊδίου οὐσίας.

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something, and the first mover must be unmoved in its own right, and an eternal motion must be caused by something eternal, and a single motion by a single thing. But besides the simple locomotion of the universe, which we say the first and unmovable substance causes, we see other locomotions that are eternal, those of the planets (for a body that moves in a circle is eternal and never at rest; this has been shown in the works on nature). So each of these locomotions too must be caused by a substance that is both unmovable in its own right and eternal.

ἥ τε γὰρ τῶν ἄστρων φύσις ἀΐδιος οὐσία τις οὖσα, καὶ τὸ κινοῦν ἀΐδιον καὶ πρότερον τοῦ κινουμένου, καὶ τὸ πρότερον οὐσίας οὐσίαν ἀναγκαῖον εἶναι. φανερὸν τοίνυν ὅτι τοσαύτας τε οὐσίας ἀναγκαῖον εἶναι τήν τε φύσιν ἀϊδίους καὶ ἀκινήτους καθ' αὑτάς, καὶ ἄνευ μεγέθους διὰ τὴν εἰρημένην αἰτίαν πρότερον. [1073b] —ὅτι μὲν οὖν εἰσὶν οὐσίαι, καὶ τούτων τις πρώτη καὶ δευτέρα κατὰ τὴν αὐτὴν τάξιν ταῖς φοραῖς τῶν ἄστρων, φανερόν· τὸ δὲ πλῆθος ἤδη τῶν φορῶν ἐκ τῆς οἰκειοτάτης φιλοσοφίᾳ τῶν μαθηματικῶν ἐπιστημῶν δεῖ σκοπεῖν, ἐκ τῆς ἀστρολογίας· αὕτη γὰρ περὶ οὐσίας αἰσθητῆς μὲν ἀϊδίου δὲ ποιεῖται τὴν θεωρίαν, αἱ δ' ἄλλαι περὶ οὐδεμιᾶς οὐσίας, οἷον ἥ τε περὶ τοὺς ἀριθμοὺς καὶ τὴν γεωμετρίαν.

For the nature of the stars is eternal, being a kind of substance; the mover is eternal and prior to what is moved; and what is prior to a substance must be a substance. It is clear, then, that there must be as many substances as there are such motions, eternal in nature, unmovable in their own right, and without magnitude, for the reason given earlier. [1073b] It is clear, then, that the movers are substances, and that one of them is first and another second, in the same order as the motions of the stars. But the number of the motions must be investigated in the light of the mathematical science most akin to philosophy, astronomy. For astronomy studies a substance that is perceptible but eternal, while the others, arithmetic and geometry, for instance, study no substance at all.

1073b ὅτι μὲν οὖν πλείους τῶν φερομένων αἱ φοραί, φανερὸν τοῖς καὶ μετρίως ἡμμένοις (πλείους γὰρ ἕκαστον φέρεται μιᾶς τῶν πλανωμένων ἄστρων)· πόσαι δ' αὗται τυγχάνουσιν οὖσαι, νῦν μὲν ἡμεῖς ἃ λέγουσι τῶν μαθηματικῶν τινὲς ἐννοίας χάριν λέγομεν, ὅπως ᾖ τι τῇ διανοίᾳ πλῆθος ὡρισμένον ὑπολαβεῖν· τὸ δὲ λοιπὸν τὰ μὲν ζητοῦντας αὐτοὺς δεῖ τὰ δὲ πυνθανομένους παρὰ τῶν ζητούντων, ἄν τι φαίνηται παρὰ τὰ νῦν εἰρημένα τοῖς ταῦτα πραγματευομένοις, φιλεῖν μὲν ἀμφοτέρους, πείθεσθαι δὲ τοῖς ἀκριβεστέροις.—Εὔδοξος μὲν οὖν ἡλίου καὶ σελήνης ἑκατέρου τὴν φορὰν ἐν τρισὶν ἐτίθετ' εἶναι σφαίραις, ὧν τὴν μὲν πρώτην τὴν τῶν ἁπλανῶν ἄστρων εἶναι, τὴν δὲ δευτέραν κατὰ τὸν διὰ μέσων τῶν ζῳδίων, τὴν δὲ τρίτην κατὰ τὸν λελοξωμένον ἐν τῷ πλάτει τῶν ζῳδίων (ἐν μείζονι δὲ πλάτει λελοξῶσθαι καθ' ὃν ἡ σελήνη φέρεται ἢ καθ' ὃν ὁ ἥλιος), τῶν δὲ πλανωμένων ἄστρων ἐν τέτταρσιν ἑκάστου σφαίραις, καὶ τούτων δὲ τὴν μὲν πρώτην καὶ δευτέραν τὴν αὐτὴν εἶναι ἐκείναις (τήν τε γὰρ τῶν ἁπλανῶν τὴν ἁπάσας φέρουσαν εἶναι, καὶ τὴν ὑπὸ ταύτῃ τεταγμένην καὶ κατὰ τὸν διὰ μέσων τῶν ζῳδίων τὴν φορὰν ἔχουσαν κοινὴν ἁπασῶν εἶναι), τῆς δὲ τρίτης ἁπάντων τοὺς πόλους ἐν τῷ διὰ μέσων τῶν

That the motions are more numerous than the bodies moved is clear to anyone who has given the matter even moderate attention; for each of the planets has more than one motion. As for how many these motions actually are, we shall for now state what some of the mathematicians say, to give an idea of the matter, so that the mind may have some definite number to grasp. For the rest, we must partly investigate for ourselves and partly learn from those who investigate; and if those who work on these questions come to a view that differs from what has now been said, we must respect both parties but follow the more accurate.—Eudoxus, then, held that the motion of the sun and of the moon each involves three spheres. The first is that of the fixed stars; the second moves along the circle that runs through the middle of the zodiac; and the third along the circle inclined across the breadth of the zodiac (the circle along which the moon moves being inclined at a greater angle than the one along which the sun moves). The mo-

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ζῳδίων εἶναι, τῆς δὲ τετάρτης τὴν φορὰν κατὰ τὸν λελοξωμένον πρὸς τὸν μέσον ταύτης·

εἶναι δὲ τῆς τρίτης σφαίρας τοὺς πόλους τῶν μὲν ἄλλων ἰδίους, τοὺς δὲ τῆς Ἀφροδίτης καὶ τοῦ Ἑρμοῦ τοὺς αὐτούς· Κάλλιππος δὲ τὴν μὲν θέσιν τῶν σφαιρῶν τὴν αὐτὴν ἐτίθετο Εὐδόξῳ [τοῦτ' ἔστι τῶν ἀποστημάτων τὴν τάξιν], τὸ δὲ πλῆθος τῷ μὲν τοῦ Διὸς καὶ τῷ τοῦ Κρόνου τὸ αὐτὸ ἐκείνῳ ἀπεδίδου, τῷ δ' ἡλίῳ καὶ τῇ σελήνῃ δύο ᾤετο ἔτι προσθετέας εἶναι σφαίρας, τὰ φαινόμενα εἰ μέλλει τις ἀποδώσειν, τοῖς δὲ λοιποῖς τῶν πλανήτων ἑκάστῳ μίαν.

ἀναγκαῖον δέ, εἰ μέλλουσι συντεθεῖσαι πᾶσαι τὰ φαινόμενα ἀποδώσειν, [1074a] καθ' ἕκαστον τῶν πλανωμένων ἑτέρας σφαίρας μιᾷ ἐλάττονας εἶναι τὰς ἀνελιττούσας καὶ εἰς τὸ αὐτὸ ἀποκαθιστάσας τῇ θέσει τὴν πρώτην σφαῖραν ἀεὶ τοῦ ὑποκάτω τεταγμένου ἄστρου· οὕτω γὰρ μόνως ἐνδέχεται τὴν τῶν πλανήτων φορὰν ἅπαντα ποιεῖσθαι. ἐπεὶ οὖν ἐν αἷς μὲν αὐτὰ φέρεται σφαίραις αἱ μὲν ὀκτὼ αἱ δὲ πέντε καὶ εἴκοσίν εἰσιν, τούτων δὲ μόνας οὐ δεῖ ἀνελιχθῆναι ἐν αἷς τὸ κατωτάτω τεταγμένον φέρεται, αἱ μὲν τὰς τῶν πρώτων δύο ἀνελίττουσαι ἓξ ἔσονται, αἱ δὲ τὰς τῶν ὕστερον τεττάρων ἑκκαίδεκα· ὁ δὴ ἁπασῶν ἀριθμὸς τῶν τε φερουσῶν καὶ τῶν ἀνελιττουσῶν ταύτας πεντήκοντά τε καὶ πέντε.

1074a εἰ δὲ τῇ σελήνῃ τε καὶ τῷ ἡλίῳ μὴ προστιθείη τις ἃς εἴπομεν κινήσεις, αἱ πᾶσαι σφαῖραι ἔσονται ἑπτά τε καὶ τεσσαράκοντα.—τὸ μὲν οὖν πλῆθος τῶν σφαιρῶν ἔστω τοσοῦτον, ὥστε καὶ τὰς οὐσίας καὶ τὰς ἀρχὰς τὰς ἀκινήτους [καὶ τὰς αἰσθητὰς] τοσαύτας εὔλογον ὑπολαβεῖν (τὸ γὰρ ἀναγκαῖον ἀφείσθω τοῖς ἰσχυροτέροις λέγειν)· εἰ δὲ μηδεμίαν οἷόν τ' εἶναι φορὰν μὴ συντείνουσαν πρὸς ἄστρου φοράν, ἔτι δὲ πᾶσαν φύσιν καὶ πᾶσαν οὐσίαν ἀπαθῆ καὶ καθ' αὑτὴν τοῦ ἀρίστου τετυχηκυῖαν τέλος εἶναι δεῖ νομίζειν, οὐδεμία ἂν εἴη

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tion of each of the planets, he held, involves four spheres. Of these the first and second are the same as those just mentioned (for the sphere of the fixed stars is the one that carries all the others, and the sphere placed beneath it, which moves along the circle through the middle of the zodiac, is common to all). The poles of the third sphere of every planet lie on the circle through the middle of the zodiac, and the fourth moves along a circle inclined to the equator of the third.[4]

The poles of the third sphere, he held, are different for each of the other planets, but the same for Venus and Mercury. Callippus assumed the same arrangement of the spheres as Eudoxus, and assigned the same number to Jupiter and Saturn as Eudoxus did; but he thought that two more spheres must be added for the sun and two for the moon, if one is to account for the observed phenomena, and one for each of the remaining planets.[5]

But if all the spheres combined are to account for the phenomena, there must be, [1074a] for each of the planets, other spheres, one fewer in number, that unwind the others and restore to the same position the first sphere of the star placed next below. Only in this way can the whole system produce the motion of the planets. Since, then, the spheres in which the planets themselves are carried are eight for some and twenty-five for others, and of these only those in which the lowest-placed body is carried need not be unwound, the spheres that unwind those of the first two will be six, and those that unwind those of the next four will be sixteen. So the number of all the spheres, both those that carry the planets and those that unwind these, will be fifty-five.

And if one does not add to the moon and the sun the motions we mentioned, the spheres will number forty-seven in all.—Let the number of the spheres, then, be this, so that it is reasonable to suppose that the unmovable substances and principles are just as many (as for necessity, let us leave that to be asserted by more forceful thinkers). But if there can be no locomotion that does not contribute to the locomotion of a star,

4 Eudoxus explained the heavenly motions by nested rotating spheres centered on the earth.
5 Callippus of Cyzicus, a younger astronomer, refined Eudoxus's system; the Greek names the planets after their gods (Aphrodite, Hermes, Zeus, Cronus).

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παρὰ ταύτας ἑτέρα φύσις, ἀλλὰ τοῦτον ἀνάγκη τὸν ἀριθμὸν εἶναι τῶν οὐσιῶν. εἴτε γὰρ εἰσὶν ἕτεραι, κινοῖεν ἂν ὡς τέλος οὖσαι φορᾶς· ἀλλὰ εἶναί γε ἄλλας φορὰς ἀδύνατον παρὰ τὰς εἰρημένας. τοῦτο δὲ εὔλογον ἐκ τῶν φερομένων ὑπολαβεῖν.

εἰ γὰρ πᾶν τὸ φέρον τοῦ φερομένου χάριν πέφυκε καὶ φορὰ πᾶσα φερομένου τινός ἐστιν, οὐδεμία φορὰ αὐτῆς ἂν ἕνεκα εἴη οὐδ' ἄλλης φορᾶς, ἀλλὰ τῶν ἄστρων ἕνεκα. εἰ γὰρ ἔσται φορὰ φορᾶς ἕνεκα, καὶ ἐκείνην ἑτέρου δεήσει χάριν εἶναι· ὥστ' ἐπειδὴ οὐχ οἷόν τε εἰς ἄπειρον, τέλος ἔσται πάσης φορᾶς τῶν φερομένων τι θείων σωμάτων κατὰ τὸν οὐρανόν. ὅτι δὲ εἷς οὐρανός, φανερόν. εἰ γὰρ πλείους οὐρανοὶ ὥσπερ ἄνθρωποι, ἔσται εἴδει μία ἡ περὶ ἕκαστον ἀρχή, ἀριθμῷ δέ γε πολλαί. ἀλλ' ὅσα ἀριθμῷ πολλά, ὕλην ἔχει (εἷς γὰρ λόγος καὶ ὁ αὐτὸς πολλῶν, οἷον ἀνθρώπου, Σωκράτης δὲ εἷς)· τὸ δὲ τί ἦν εἶναι οὐκ ἔχει ὕλην τὸ πρῶτον· ἐντελέχεια γάρ.

ἓν ἄρα καὶ λόγῳ καὶ ἀριθμῷ τὸ πρῶτον κινοῦν ἀκίνητον ὄν· καὶ τὸ κινούμενον ἄρα ἀεὶ καὶ συνεχῶς· εἷς ἄρα οὐρανὸς μόνος. [1074b] παραδέδοται δὲ παρὰ τῶν ἀρχαίων καὶ παμπαλαίων ἐν μύθου σχήματι καταλελειμμένα τοῖς ὕστερον ὅτι θεοί τέ εἰσιν οὗτοι καὶ περιέχει τὸ θεῖον τὴν ὅλην φύσιν.

1074b τὰ δὲ λοιπὰ μυθικῶς ἤδη προσῆκται πρὸς τὴν πειθὼ τῶν πολλῶν καὶ πρὸς τὴν εἰς τοὺς νόμους καὶ τὸ συμφέρον χρῆσιν· ἀνθρωποειδεῖς τε γὰρ τούτους καὶ τῶν ἄλλων ζώων ὁμοίους τισὶ λέγουσι, καὶ τούτοις ἕτερα ἀκόλουθα καὶ παραπλήσια τοῖς εἰρημένοις, ὧν εἴ τις χωρίσας αὐτὸ λάβοι μόνον τὸ πρῶτον, ὅτι θεοὺς ᾠοντο τὰς πρώτας οὐσίας εἶναι, θείως ἂν εἰρῆσθαι νομίσειεν, καὶ κατὰ τὸ εἰκὸς πολλάκις εὑρημένης εἰς τὸ δυνατὸν ἑκάστης καὶ τέχνης καὶ φιλοσοφίας καὶ πάλιν φθειρομένων καὶ ταύτας τὰς δόξας ἐκείνων οἷον λείψανα περισεσῶσθαι μέχρι τοῦ νῦν. ἡ μὲν οὖν πάτριος δόξα καὶ ἡ παρὰ τῶν πρώτων ἐπὶ τοσοῦτον ἡμῖν φανερὰ μόνον.

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and if, further, every nature and every substance that is impassive and has in its own right attained the best must be considered an end, there can be no other nature besides these, and this must be the number of the substances. For if there were others, they would cause motion as ends of locomotion; but there cannot be other locomotions besides those mentioned. And this is reasonable to suppose from the bodies that are carried around.

For if everything that carries something exists by nature for the sake of what is carried, and every locomotion is the locomotion of something carried, no locomotion can be for its own sake or for the sake of another locomotion; they must be for the sake of the stars. For if one locomotion is for the sake of another, that one too will have to be for the sake of something else; and since an infinite regress is impossible, the end of every locomotion will be one of the divine bodies that move through the heavens. That there is one heaven is evident. For if there were many heavens, as there are many human beings, the principle of each would be one in form but many in number. But whatever is many in number has matter (for one and the same account, that of a human being, for instance, applies to many, whereas Socrates is one). But the primary essence has no matter, for it is actuality.

The first unmoved mover, then, is one both in account and in number; and so, therefore, is what is always and continuously moved. There is, then, only one heaven. [1074b] It has been handed down from the ancients of the remotest past, and left to later generations in the form of myth, that these heavenly bodies are gods and that the divine encompasses the whole of nature.

The rest has been added later in mythical form, to persuade the many and to serve the laws and the common interest. For they say that these gods are in human form or like certain other animals, and they add other things that follow from these and resemble what has been mentioned. But if one were to separate out the first point alone and take it by itself—that they thought the first substances were gods—one would think it a divinely inspired saying. And since each craft and each philosophy has probably been developed many times, as far as possible, and lost again, one might think that these opinions of theirs have survived like relics until now. Only to this extent, then, is the view of

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our ancestors and of the earliest thinkers clear to us.

THINKING OF THINKING

Divine intellect must think the best thing, itself, so its thinking is a thinking of thinking.

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τὰ δὲ περὶ τὸν νοῦν ἔχει τινὰς ἀπορίας· δοκεῖ μὲν γὰρ εἶναι τῶν φαινομένων θειότατον, πῶς δ' ἔχων τοιοῦτος ἂν εἴη, ἔχει τινὰς δυσκολίας. εἴτε γὰρ μηδὲν νοεῖ, τί ἂν εἴη τὸ σεμνόν, ἀλλ' ἔχει ὥσπερ ἂν εἰ ὁ καθεύδων· εἴτε νοεῖ, τούτου δ' ἄλλο κύριον, οὐ γάρ ἐστι τοῦτο ὅ ἐστιν αὐτοῦ ἡ οὐσία νόησις, ἀλλὰ δύναμις, οὐκ ἂν ἡ ἀρίστη οὐσία εἴη· διὰ γὰρ τοῦ νοεῖν τὸ τίμιον αὐτῷ ὑπάρχει. ἔτι δὲ εἴτε νοῦς ἡ οὐσία αὐτοῦ εἴτε νόησίς ἐστι, τί νοεῖ; ἢ γὰρ αὐτὸς αὑτὸν ἢ ἕτερόν τι· καὶ εἰ ἕτερόν τι, ἢ τὸ αὐτὸ ἀεὶ ἢ ἄλλο. πότερον οὖν διαφέρει τι ἢ οὐδὲν τὸ νοεῖν τὸ καλὸν ἢ τὸ τυχόν; ἢ καὶ ἄτοπον τὸ διανοεῖσθαι περὶ ἐνίων;

The nature of intellect involves certain puzzles. It seems to be the most divine of the things we observe, but how it must be disposed in order to be such involves some difficulties. For if it thinks of nothing, what would be so venerable about it? It would be like someone asleep. And if it thinks, but something else controls its thinking, then, since what its substance is would not be thinking but a capacity, it would not be the best substance; for it is through thinking that it has its value. Further, whether its substance is intellect or thinking, what does it think? Either itself or something else; and if something else, either always the same thing or different things. Does it make any difference, then, or none at all, whether it thinks what is fine or any chance thing? Would it not even be absurd for it to think about some things?

δῆλον τοίνυν ὅτι τὸ θειότατον καὶ τιμιώτατον νοεῖ, καὶ οὐ μεταβάλλει· εἰς χεῖρον γὰρ ἡ μεταβολή, καὶ κίνησίς τις ἤδη τὸ τοιοῦτον. πρῶτον μὲν οὖν εἰ μὴ νόησίς ἐστιν ἀλλὰ δύναμις, εὔλογον ἐπίπονον εἶναι τὸ συνεχὲς αὐτῷ τῆς νοήσεως· ἔπειτα δῆλον ὅτι ἄλλο τι ἂν εἴη τὸ τιμιώτερον ἢ ὁ νοῦς, τὸ νοούμενον. καὶ γὰρ τὸ νοεῖν καὶ ἡ νόησις ὑπάρξει καὶ τὸ χείριστον νοοῦντι, ὥστ' εἰ φευκτὸν τοῦτο (καὶ γὰρ μὴ ὁρᾶν ἔνια κρεῖττον ἢ ὁρᾶν), οὐκ ἂν εἴη τὸ ἄριστον ἡ νόησις. αὐτὸν ἄρα νοεῖ, εἴπερ ἐστὶ τὸ κράτιστον, καὶ ἔστιν ἡ νόησις νοήσεως νόησις. φαίνεται δ' ἀεὶ ἄλλου ἡ ἐπιστήμη καὶ ἡ αἴσθησις καὶ ἡ δόξα καὶ ἡ διάνοια, αὑτῆς δ' ἐν παρέργῳ.

It is clear, then, that it thinks what is most divine and most valuable, and that it does not change; for change would be for the worse, and such a thing would already be a kind of motion. First, then, if it is not thinking but a capacity, it is reasonable to suppose that the continuity of its thinking would be wearisome to it. Second, it is clear that something else would be more valuable than the intellect, namely the object of its thought. For thinking and the act of thought will belong even to one who thinks the worst things; so if this is to be avoided (and there are some things it is better not to see than to see), thinking would not be the best thing. It must, then, be itself that it thinks, if it is the most excellent thing, and its thinking is a thinking of thinking. But knowledge, perception, opinion, and reasoning always seem to be of something else, and of themselves only in passing.

ἔτι εἰ ἄλλο τὸ νοεῖν καὶ τὸ νοεῖσθαι, κατὰ πότερον αὐτῷ τὸ εὖ ὑπάρχει; οὐδὲ γὰρ ταὐτὸ τὸ εἶναι νοήσει καὶ νοουμένῳ. ἢ ἐπ' ἐνίων ἡ ἐπιστήμη τὸ πρᾶγμα, [1075a] ἐπὶ μὲν τῶν ποιητικῶν ἄνευ ὕλης ἡ οὐσία καὶ τὸ τί ἦν εἶναι, ἐπὶ δὲ τῶν θεωρητικῶν ὁ λόγος τὸ πρᾶγμα καὶ ἡ νόησις; οὐχ ἑτέρου οὖν ὄντος τοῦ νοουμένου καὶ τοῦ νοῦ, ὅσα μὴ ὕλην ἔχει, τὸ αὐτὸ ἔσται, καὶ ἡ νόησις τῷ νοουμένῳ μία.

Further, if thinking and being thought are different, in virtue of which of them does the good belong to it? For to be an act of thinking and to be an object of thought are not the same. Or is it that in some cases the knowledge is the object? [1075a] In the productive sciences, the substance without matter, the essence, is the object; in the theoretical sci-

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	ἔτι δὴ λείπεται ἀπορία, εἰ σύνθετον τὸ νοούμενον· μεταβάλλοι γὰρ ἂν ἐν τοῖς μέρεσι τοῦ ὅλου.	ences, the account and the thinking are. Since, then, what is thought and intellect are not different in the case of things that have no matter, they will be the same, and the thinking will be one with the object of thought. There remains a further puzzle: whether the object of thought is composite. For then intellect would change as it passed from part to part of the whole.
1075a	ἢ ἀδιαίρετον πᾶν τὸ μὴ ἔχον ὕλην—ὥσπερ ὁ ἀνθρώπινος νοῦς ἢ ὅ γε τῶν συνθέτων ἔχει ἔν τινι χρόνῳ (οὐ γὰρ ἔχει τὸ εὖ ἐν τῳδὶ ἢ ἐν τῳδί, ἀλλ' ἐν ὅλῳ τινὶ τὸ ἄριστον, ὂν ἄλλο τι)—οὕτως δ' ἔχει αὐτὴ αὑτῆς ἡ νόησις τὸν ἅπαντα αἰῶνα;	Or is everything that has no matter indivisible? As human intellect, or at least the intellect of composite beings, is in a certain period of time (for it does not possess the good in this part or in that, but achieves the best in a whole, which is something other than itself), so is thinking's thinking of itself throughout all eternity?

THE GOOD OF THE UNIVERSE

The good is in the world as order is in an army and also, above all, as its general.

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ἐπισκεπτέον δὲ καὶ ποτέρως ἔχει ἡ τοῦ ὅλου φύσις τὸ ἀγαθὸν καὶ τὸ ἄριστον, πότερον κεχωρισμένον τι καὶ αὐτὸ καθ' αὑτό, ἢ τὴν τάξιν. ἢ ἀμφοτέρως ὥσπερ στράτευμα; καὶ γὰρ ἐν τῇ τάξει τὸ εὖ καὶ ὁ στρατηγός, καὶ μᾶλλον οὗτος· οὐ γὰρ οὗτος διὰ τὴν τάξιν ἀλλ' ἐκείνη διὰ τοῦτόν ἐστιν. πάντα δὲ συντέτακταί πως, ἀλλ' οὐχ ὁμοίως, καὶ πλωτὰ καὶ πτηνὰ καὶ φυτά· καὶ οὐχ οὕτως ἔχει ὥστε μὴ εἶναι θατέρῳ πρὸς θάτερον μηδέν, ἀλλ' ἔστι τι.	We must also consider in which of two ways the nature of the universe possesses the good and the best: as something separate and existing by itself, or as its order. Or is it both ways, as with an army? For an army's good lies both in its order and in its general, and more in the general; for he does not exist because of the order, but the order because of him. All things are ordered together in some way, though not all in the same way—fish, birds, and plants; and things are not such that one has no relation to another; they are related.
πρὸς μὲν γὰρ ἓν ἅπαντα συντέτακται, ἀλλ' ὥσπερ ἐν οἰκίᾳ τοῖς ἐλευθέροις ἥκιστα ἔξεστιν ὅ τι ἔτυχε ποιεῖν, ἀλλὰ πάντα ἢ τὰ πλεῖστα τέτακται, τοῖς δὲ ἀνδραπόδοις καὶ τοῖς θηρίοις μικρὸν τὸ εἰς τὸ κοινόν, τὸ δὲ πολὺ ὅ τι ἔτυχεν· τοιαύτη γὰρ ἑκάστου ἀρχὴ αὐτῶν ἡ φύσις ἐστίν. λέγω δ' οἷον εἴς γε τὸ διακριθῆναι ἀνάγκη ἅπασιν ἐλθεῖν, καὶ ἄλλα οὕτως ἔστιν ὧν κοινωνεῖ ἅπαντα εἰς τὸ ὅλον.—ὅσα δὲ ἀδύνατα συμβαίνει ἢ ἄτοπα τοῖς ἄλλως λέγουσι, καὶ ποῖα οἱ χαριεστέρως λέγοντες, καὶ ἐπὶ ποίων ἐλάχισταί ἀπορίαι, δεῖ μὴ λανθάνειν. πάντες γὰρ ἐξ ἐναντίων ποιοῦσι πάντα. οὔτε δὲ τὸ πάντα οὕτε τὸ ἐξ ἐναντίων ὀρθῶς, οὔτ' ἐν ὅσοις τὰ ἐναντία ὑπάρχει, πῶς ἐκ τῶν ἐναντίων ἔσται, οὐ λέγουσιν· ἀπαθῆ γὰρ τὰ ἐναντία ὑπ' ἀλλήλων.	For all things are ordered together toward one end. But it is as in a household: the free are least at liberty to act at random, and all or most of what they do is ordered, while the slaves and the animals contribute little to the common good and mostly act at random. For such is the principle that constitutes the nature of each. I mean, for instance, that all things must at least come to be dissolved; and similarly there are other things in which all share for the good of the whole.—We must not overlook the impossible or absurd consequences that face those who hold other views, and what the views of the more refined thinkers are, and which views involve the fewest puzzles. All thinkers make all things out of contraries. But neither "all things" nor "out of contraries" is right; nor do they say how things in which the contrar-

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ies are present will come from the contraries, since contraries are not affected by one another.

ἡμῖν δὲ λύεται τοῦτο εὐλόγως τῷ τρίτον τι εἶναι. οἱ δὲ τὸ ἕτερον τῶν ἐναντίων ὕλην ποιοῦσιν, ὥσπερ οἱ τὸ ἄνισον τῷ ἴσῳ ἢ τῷ ἑνὶ τὰ πολλά. λύεται δὲ καὶ τοῦτο τὸν αὐτὸν τρόπον· ἡ γὰρ ὕλη ἡ μία οὐδενὶ ἐναντίον. ἔτι ἅπαντα τοῦ φαύλου μεθέξει ἔξω τοῦ ἑνός· τὸ γὰρ κακὸν αὐτὸ θάτερον τῶν στοιχείων. οἱ δ' ἄλλοι οὐδ' ἀρχὰς τὸ ἀγαθὸν καὶ τὸ κακόν· καίτοι ἐν ἅπασι μάλιστα τὸ ἀγαθὸν ἀρχή. οἱ δὲ τοῦτο μὲν ὀρθῶς ὅτι ἀρχήν, ἀλλὰ πῶς τὸ ἀγαθὸν ἀρχὴ οὐ λέγουσιν, πότερον ὡς τέλος ἢ ὡς κινῆσαν ἢ ὡς εἶδος.
[1075b] ἀτόπως δὲ καὶ Ἐμπεδοκλῆς· τὴν γὰρ φιλίαν ποιεῖ τὸ ἀγαθόν, αὕτη δ' ἀρχὴ καὶ ὡς κινοῦσα (συνάγει γάρ) καὶ ὡς ὕλη· μόριον γὰρ τοῦ μίγματος.

For us this difficulty is reasonably resolved by there being a third factor. Others make one of the two contraries matter, as those do who make the unequal the matter for the equal, or the many for the One. This too is resolved in the same way: for the matter that is one is contrary to nothing. Further, on their view everything except the One will partake of the bad; for the bad itself is one of the two elements. Others do not even treat the good and the bad as principles; yet in all things the good is a principle in the highest degree. Others are right that it is a principle, but they do not say how the good is a principle—whether as end, as mover, or as form. [1075b] Empedocles too speaks absurdly: he makes Love the good, and this is a principle both as mover (for it brings things together) and as matter (for it is part of the mixture).

1075b εἰ δὴ καὶ τῷ αὐτῷ συμβέβηκεν καὶ ὡς ὕλῃ ἀρχῇ εἶναι καὶ ὡς κινοῦντι, ἀλλὰ τό γ' εἶναι οὐ ταὐτό. κατὰ πότερον οὖν φιλία; ἄτοπον δὲ καὶ τὸ ἄφθαρτον εἶναι τὸ νεῖκος· τοῦτο δ' ἐστὶν αὐτῷ ἡ τοῦ κακοῦ φύσις. Ἀναξαγόρας δὲ ὡς κινοῦν τὸ ἀγαθὸν ἀρχήν· ὁ γὰρ νοῦς κινεῖ. ἀλλὰ κινεῖ ἕνεκά τινος, ὥστε ἕτερον, πλὴν ὡς ἡμεῖς λέγομεν· ἡ γὰρ ἰατρικὴ ἐστί πως ἡ ὑγίεια. ἄτοπον δὲ καὶ τὸ ἐναντίον μὴ ποιῆσαι τῷ ἀγαθῷ καὶ τῷ νῷ. πάντες δ' οἱ τἀναντία λέγοντες οὐ χρῶνται τοῖς ἐναντίοις, ἐὰν μὴ ῥυθμίσῃ τις. καὶ διὰ τί τὰ μὲν φθαρτὰ τὰ δ' ἄφθαρτα, οὐδεὶς λέγει· πάντα γὰρ τὰ ὄντα ποιοῦσιν ἐκ τῶν αὐτῶν ἀρχῶν.

Now even if the same thing happens to be a principle both as matter and as mover, still what it is to be each is not the same. In which respect, then, is Love a principle? It is also absurd that Strife should be imperishable; for Strife is, for him, the nature of the bad. Anaxagoras makes the good a principle as mover, for intellect moves things. But it moves them for the sake of something, which must therefore be something other than it—except as we put it, for the medical craft is in a way health. It is also absurd not to make something contrary to the good and to intellect. All who speak of contraries fail to make use of the contraries, unless one reshapes their views. And no one says why some things are perishable and others imperishable; for they make all the things that are out of the same principles.

ἔτι οἱ μὲν ἐκ τοῦ μὴ ὄντος ποιοῦσι τὰ ὄντα· οἱ δ' ἵνα μὴ τοῦτο ἀναγκασθῶσιν, ἓν πάντα ποιοῦσιν.—ἔτι διὰ τί ἀεὶ ἔσται γένεσις καὶ τί αἴτιον γενέσεως, οὐδεὶς λέγει. καὶ τοῖς δύο ἀρχὰς ποιοῦσιν ἄλλην ἀνάγκη ἀρχὴν κυριωτέραν εἶναι, καὶ τοῖς τὰ εἴδη ἔτι ἄλλη ἀρχὴ κυριωτέρα· διὰ τί γὰρ μετέσχεν ἢ μετέχει; καὶ τοῖς μὲν ἄλλοις ἀνάγκη τῇ σοφίᾳ καὶ τῇ τιμιωτάτῃ ἐπιστήμῃ εἶναί τι ἐναντίον, ἡμῖν δ' οὔ. οὐ γάρ ἐστιν ἐναντίον τῷ πρώτῳ οὐδέν· πάντα γὰρ τὰ ἐναντία ὕλην ἔχει, καὶ δυνάμει ταῦτα ἔστιν· ἡ δὲ ἐναντία ἄγνοια εἰς τὸ ἐναντίον, τῷ δὲ πρώτῳ ἐναντίον οὐδέν.

Further, some make the things that are come from what is not; others, to avoid being forced to this, make all things one.—Further, no one says why there will always be coming-to-be, or what its cause is. Those who posit two principles must posit another, more authoritative principle; and so must those who posit the Forms, for why did things come to participate in them, or why do they participate? And for the others, wisdom, the most valuable knowledge, must have a contrary; for us it need not. For nothing is contrary to what is first. All contraries have matter, and things that have matter exist potentially; and the ignorance con-

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trary to wisdom would be of the contrary object; but nothing is contrary to what is first.

εἴ τε μὴ ἔσται παρὰ τὰ αἰσθητὰ ἄλλα, οὐκ ἔσται ἀρχὴ καὶ τάξις καὶ γένεσις καὶ τὰ οὐράνια, ἀλλ᾽ ἀεὶ τῆς ἀρχῆς ἀρχή, ὥσπερ τοῖς θεολόγοις καὶ τοῖς φυσικοῖς πᾶσιν. εἰ δ᾽ ἔσται τὰ εἴδη· ἢ ⟨οἱ⟩ ἀριθμοί, οὐδενὸς αἴτια· εἰ δὲ μή, οὔτι κινήσεώς γε. ἔτι πῶς ἔσται ἐξ ἀμεγεθῶν μέγεθος καὶ συνεχές; ὁ γὰρ ἀριθμὸς οὐ ποιήσει συνεχές, οὔτε ὡς κινοῦν οὔτε ὡς εἶδος. ἀλλὰ μὴν οὐδέν γ᾽ ἔσται τῶν ἐναντίων ὅπερ καὶ ποιητικὸν καὶ κινητικόν; ἐνδέχοιτο γὰρ ἂν μὴ εἶναι. ἀλλὰ μὴν ὕστερόν γε τὸ ποιεῖν δυνάμεως. οὐκ ἄρα ἀΐδια τὰ ὄντα. ἀλλ᾽ ἔστιν· ἀναιρετέον ἄρα τούτων τι. τοῦτο δ᾽ εἴρηται πῶς.

And if there are to be no other things besides perceptible things, there will be no principle, no order, no coming-to-be, no heavenly bodies, but always a principle of the principle, as with the theologians and all the natural philosophers. But if there are to be Forms or numbers, they will be causes of nothing; or if of something, at least not of motion. Further, how can magnitude and the continuous come from things without magnitude? For number will not produce the continuous, either as mover or as form. Again, none of the contraries will be something that is essentially productive and capable of causing motion; for then it could possibly not be. And in any case its acting would be posterior to its capacity. Then the things that are would not be eternal. But they are; so one of these premises must be rejected. How this is to be done has been said.

ἔτι τίνι οἱ ἀριθμοὶ ἓν ἢ ἡ ψυχὴ καὶ τὸ σῶμα καὶ ὅλως τὸ εἶδος καὶ τὸ πρᾶγμα, οὐδὲν λέγει οὐδείς· οὐδ᾽ ἐνδέχεται εἰπεῖν, ἐὰν μὴ ὡς ἡμεῖς εἴπῃ, ὡς τὸ κινοῦν ποιεῖ. οἱ δὲ λέγοντες τὸν ἀριθμὸν πρῶτον τὸν μαθηματικὸν καὶ οὕτως ἀεὶ ἄλλην ἐχομένην οὐσίαν καὶ ἀρχὰς ἑκάστης ἄλλας, [1076a] ἐπεισοδιώδη τὴν τοῦ παντὸς οὐσίαν ποιοῦσιν (οὐδὲν γὰρ ἡ ἑτέρα τῇ ἑτέρᾳ συμβάλλεται οὖσα ἢ μὴ οὖσα) καὶ ἀρχὰς πολλάς· τὰ δὲ ὄντα οὐ βούλεται πολιτεύεσθαι κακῶς. οὐκ ἀγαθὸν πολυκοιρανίη· εἷς κοίρανος ἔστω.

Further, what makes numbers one, or soul and body, or in general form and thing—no one says anything about this; nor can they, unless they say, as we do, that the mover makes them one. Those who say that mathematical number is first, and that so there is always another kind of substance next in line, with different principles for each, [1076a] make the substance of the universe a series of disconnected episodes (for one substance contributes nothing to another by existing or not existing), and give us many principles. But the things that are do not wish to be badly governed. "The rule of many is not good; let there be one ruler."[6]

6 The last line quotes Homer's *Iliad* (2.204), where Odysseus restores order among the Greek troops.

Book Mu (XIII)

Mathematical objects and the Forms.

CHAPTER 1

	GREEK	ENGLISH
1076a	περὶ μὲν οὖν τῆς τῶν αἰσθητῶν οὐσίας εἴρηται τίς ἐστιν, ἐν μὲν τῇ μεθόδῳ τῇ τῶν φυσικῶν περὶ τῆς ὕλης, ὕστερον δὲ περὶ τῆς κατ' ἐνέργειαν· ἐπεὶ δ' ἡ σκέψις ἐστὶ πότερον ἔστι τις παρὰ τὰς αἰσθητὰς οὐσίας ἀκίνητος καὶ ἀΐδιος ἢ οὐκ ἔστι, καὶ εἰ ἔστι τίς ἐστι, πρῶτον τὰ παρὰ τῶν ἄλλων λεγόμενα θεωρητέον, ὅπως εἴτε τι μὴ καλῶς λέγουσι, μὴ τοῖς αὐτοῖς ἔνοχοι ὦμεν, καὶ εἴ τι δόγμα κοινὸν ἡμῖν κἀκείνοις, τοῦτ' ἰδίᾳ μὴ καθ' ἡμῶν δυσχεραίνωμεν· ἀγαπητὸν γὰρ εἴ τις τὰ μὲν κάλλιον λέγοι τὰ δὲ μὴ χεῖρον. δύο δ' εἰσὶ δόξαι περὶ τούτων· τά τε γὰρ μαθηματικά φασιν οὐσίας εἶναί τινες, οἷον ἀριθμοὺς καὶ γραμμὰς καὶ τὰ συγγενῆ τούτοις, καὶ πάλιν τὰς ἰδέας.	We have said what the substance of perceptible things is: in our treatise on nature, when discussing matter, and later, when discussing substance as actuality. Since our inquiry is whether there is or is not, besides perceptible substances, some substance that is unmovable and eternal, and if there is, what it is, we must first examine what others have said, so that if they say anything wrongly we may not be liable to the same errors, and if some doctrine is common to us and them, we may not be privately annoyed at ourselves over it. For one should be content to state some points better and others no worse. There are two views on these matters: some say that mathematical objects—numbers, lines, and things akin to them—are substances, and others say that the Forms are.
	ἐπεὶ δὲ οἱ μὲν δύο ταῦτα γένη ποιοῦσι, τάς τε ἰδέας καὶ τοὺς μαθηματικοὺς ἀριθμούς, οἱ δὲ μίαν φύσιν ἀμφοτέρων, ἕτεροι δέ τινες τὰς μαθηματικὰς μόνον οὐσίας εἶναί φασι, σκεπτέον πρῶτον μὲν περὶ τῶν μαθηματικῶν, μηδεμίαν προστιθέντας φύσιν ἄλλην αὐτοῖς, οἷον πότερον ἰδέαι τυγχάνουσιν οὖσαι ἢ οὔ, καὶ πότερον ἀρχαὶ καὶ οὐσίαι τῶν ὄντων ἢ οὔ, ἀλλ' ὡς περὶ μαθηματικῶν μόνον εἴτ' εἰσὶν εἴτε μὴ εἰσί, καὶ εἰ εἰσὶ πῶς εἰσίν· ἔπειτα μετὰ ταῦτα χωρὶς περὶ τῶν ἰδεῶν αὐτῶν ἁπλῶς καὶ ὅσον νόμου χάριν·	Since some make these two distinct genera—the Forms and the mathematical numbers—others posit a single nature for both, and still others say that only the mathematical substances exist, we must first consider mathematical objects, without attributing to them any other nature—asking, for instance, not whether they are in fact Forms or not, or whether they are principles and substances of the things that are or not, but only, as mathematical objects, whether they exist or not, and if they exist, in what way. Then after this we must consider the Forms themselves, separately, in general terms and only so far as custom requires;
	τεθρύληται γὰρ τὰ πολλὰ καὶ ὑπὸ τῶν ἐξωτερικῶν λόγων, ἔτι δὲ πρὸς ἐκείνην δεῖ τὴν σκέψιν ἁπαντᾶν τὸν πλείω λόγον, ὅταν ἐπισκοπῶμεν εἰ αἱ οὐσίαι καὶ αἱ ἀρχαὶ τῶν ὄντων ἀριθμοὶ καὶ ἰδέαι εἰσίν· μετὰ γὰρ τὰς ἰδέας αὕτη λείπεται τρίτη σκέψις.—ἀνάγκη δ', εἴπερ ἔστι τὰ μαθηματικά, ἢ ἐν τοῖς αἰσθητοῖς εἶναι αὐτὰ καθάπερ λέγουσί τινες, ἢ κεχωρισμένα τῶν αἰσθητῶν (λέγουσι δὲ καὶ οὕτω τινές)· ἢ εἰ μηδετέρως, ἢ οὐκ εἰσὶν ἢ ἄλλον	for most of the points have been made over and over, even in our popular works. Further, the greater part of our discussion must converge on that inquiry, when we examine whether the substances and principles of the things that are are numbers and Forms; for after the Forms this remains as a third inquiry.—If mathematical objects exist, they must either be in perceptible things, as some say, or be separate from perceptible things

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τρόπον εἰσίν· ὥσθ' ἡ ἀμφισβήτησις ἡμῖν ἔσται οὐ περὶ τοῦ εἶναι ἀλλὰ περὶ τοῦ τρόπου.	(some say this too); or, if they are neither, either they do not exist or they exist in some other way. So our dispute will be not about whether they are, but about the manner in which they are.[1]

MATHEMATICAL OBJECTS ARE NOT SEPARATE

Mathematical objects can be neither in perceptible things nor separate from them as substances.

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ὅτι μὲν τοίνυν ἔν γε τοῖς αἰσθητοῖς ἀδύνατον εἶναι καὶ ἅμα πλασματίας ὁ λόγος, εἴρηται μὲν καὶ ἐν τοῖς διαπορήμασιν ὅτι δύο ἅμα στερεὰ εἶναι ἀδύνατον, 1076b ἔτι δὲ καὶ ὅτι τοῦ αὐτοῦ λόγου καὶ τὰς ἄλλας δυνάμεις καὶ φύσεις ἐν τοῖς αἰσθητοῖς εἶναι καὶ μηδεμίαν κεχωρισμένην·—ταῦτα μὲν οὖν εἴρηται πρότερον, ἀλλὰ πρὸς τούτοις φανερὸν ὅτι ἀδύνατον διαιρεθῆναι ὁτιοῦν σῶμα· κατ' ἐπίπεδον γὰρ διαιρεθήσεται, καὶ τοῦτο κατὰ γραμμὴν καὶ αὕτη κατὰ στιγμήν, ὥστ' εἰ τὴν στιγμὴν διελεῖν ἀδύνατον, καὶ τὴν γραμμήν, εἰ δὲ ταύτην, καὶ τἆλλα. τί οὖν διαφέρει ἢ ταύτας εἶναι τοιαύτας φύσεις, ἢ αὐτὰς μὲν μή, εἶναι δ' ἐν αὐταῖς τοιαύτας φύσεις; τὸ αὐτὸ γὰρ συμβήσεται· διαιρουμένων γὰρ τῶν αἰσθητῶν διαιρεθήσονται, ἢ οὐδὲ αἱ αἰσθηταί.	That they cannot be in perceptible things, and that the theory is a fabrication, has been said in our discussion of the puzzles: that two solids cannot be in the same place at once, 1076b and further that by the same argument the other powers and natures too would be in perceptible things and none would be separate. We have said these things before. But in addition it is evident that on this view no body at all could be divided. For it would be divided along a plane, and the plane along a line, and the line at a point; so if the point cannot be divided, neither can the line, and if the line cannot, neither can the rest. What difference does it make, then, whether perceptible things are such natures, or are not themselves, but have such natures in them? The result will be the same: when perceptible things are divided, these will be divided, or else perceptible things cannot be divided either.
1076b ἀλλὰ μὴν οὐδὲ κεχωρισμένας γ' εἶναι φύσεις τοιαύτας δυνατόν. εἰ γὰρ ἔσται στερεὰ παρὰ τὰ αἰσθητὰ κεχωρισμένα τούτων ἕτερα καὶ πρότερα τῶν αἰσθητῶν, δῆλον ὅτι καὶ παρὰ τὰ ἐπίπεδα ἕτερα ἀναγκαῖον εἶναι ἐπίπεδα κεχωρισμένα καὶ στιγμὰς καὶ γραμμάς (τοῦ γὰρ αὐτοῦ λόγου)· εἰ δὲ ταῦτα, πάλιν παρὰ τὰ τοῦ στερεοῦ τοῦ μαθηματικοῦ ἐπίπεδα καὶ γραμμὰς καὶ στιγμὰς ἕτερα κεχωρισμένα (πρότερα γὰρ τῶν συγκειμένων ἐστὶ τὰ ἀσύνθετα· καὶ εἴπερ τῶν αἰσθητῶν πρότερα σώματα μὴ αἰσθητά, τῷ αὐτῷ λόγῳ καὶ τῶν ἐπιπέδων τῶν ἐν τοῖς ἀκινήτοις στερεοῖς τὰ αὐτὰ καθ' αὑτά, ὥστε ἕτερα ταῦτα ἐπίπεδα καὶ γραμμαὶ τῶν ἅμα τοῖς στερεοῖς τοῖς κεχωρισμένοις· τὰ μὲν γὰρ ἅμα τοῖς μαθηματικοῖς στερεοῖς τὰ δὲ πρότερα τῶν μαθηματικῶν στερεῶν).	Nor, again, can such natures exist separately. For if there are to be solids besides perceptible solids, separate from them and prior to them, it is clear that besides perceptible planes there must also be other, separate planes, and points and lines (for the argument is the same). And if so, then again besides the planes, lines, and points of the mathematical solid there will be others that are separate. (For what is incomposite is prior to what is composite; and if there are non-perceptible bodies prior to perceptible ones, by the same argument there will be planes existing by themselves prior to the planes in the unmovable solids. So these planes and lines will be different from those that exist together with the separate solids; for the latter exist together with the mathematical solids, while the former are prior to the mathematical solids.)

1 The "popular" (literally "external") works were probably Aristotle's dialogues and other writings for a wider audience, now mostly lost.

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πάλιν τοίνυν τούτων τῶν ἐπιπέδων ἔσονται γραμμαί, ὧν πρότερον δεήσει ἑτέρας γραμμὰς καὶ στιγμὰς εἶναι διὰ τὸν αὐτὸν λόγον· καὶ τούτων ⟨τῶν⟩ ἐκ ταῖς προτέραις γραμμαῖς ἑτέρας προτέρας στιγμάς, ὧν οὐκέτι πρότεραι ἕτεραι. ἄτοπός τε δὴ γίγνεται ἡ σώρευσις (συμβαίνει γὰρ στερεὰ μὲν μοναχὰ παρὰ τὰ αἰσθητά, ἐπίπεδα δὲ τριττὰ παρὰ τὰ αἰσθητά—τά τε παρὰ τὰ αἰσθητὰ καὶ τὰ ἐν τοῖς μαθηματικοῖς στερεοῖς καὶ ⟨τὰ⟩ παρὰ τὰ ἐν τούτοις—γραμμαὶ δὲ τετραξαί, στιγμαὶ δὲ πενταξαί· ὥστε περὶ ποῖα αἱ ἐπιστῆμαι ἔσονται αἱ μαθηματικαὶ τούτων;	Again, then, these planes will have lines, and prior to these, by the same argument, there will have to be other lines and points; and prior to the points in these prior lines there will have to be still other points, though there will be no others prior to these. The accumulation becomes absurd. For we end up with one set of solids besides the perceptible ones; three sets of planes besides the perceptible ones—those besides the perceptible ones, those in the mathematical solids, and those besides the ones in these; four sets of lines; and five sets of points. Which of these, then, will the mathematical sciences be about?
οὐ γὰρ δὴ περὶ τὰ ἐν τῷ στερεῷ τῷ ἀκινήτῳ ἐπίπεδα καὶ γραμμὰς καὶ στιγμάς· ἀεὶ γὰρ περὶ τὰ πρότερα ἡ ἐπιστήμη)· ὁ δ' αὐτὸς λόγος καὶ περὶ τῶν ἀριθμῶν· παρ' ἑκάστας γὰρ τὰς στιγμὰς ἕτεραι ἔσονται μονάδες, καὶ παρ' ἕκαστα τὰ ὄντα, ⟨τὰ⟩ αἰσθητά, εἶτα τὰ νοητά, ὥστ' ἔσται γένη τῶν μαθηματικῶν ἀριθμῶν. ἔτι ἅπερ καὶ ἐν τοῖς ἀπορήμασιν ἐπήλθομεν πῶς ἐνδέχεται λύειν; 1077a περὶ ἃ γὰρ ἡ ἀστρολογία ἐστίν, ὁμοίως ἔσται παρὰ τὰ αἰσθητὰ καὶ περὶ ἃ ἡ γεωμετρία· εἶναι δ' οὐρανὸν καὶ τὰ μόρια αὐτοῦ πῶς δυνατόν, ἢ ἄλλο ὁτιοῦν ἔχον κίνησιν;	Surely not the planes, lines, and points in the unmovable solid; for knowledge is always of what is prior. The same argument applies to numbers too: for besides each set of points there will be different units, and besides each set of the things that are, first the perceptible ones and then the intelligible ones; so there will be kinds of mathematical numbers. Further, how can one solve the problems we went through in our discussion of the puzzles? 1077a For the objects of astronomy will exist besides perceptible things in the same way as the objects of geometry. But how can there be a heaven and its parts, or anything else that has motion, besides perceptible things?
1077a ὁμοίως δὲ καὶ τὰ ὀπτικὰ καὶ τὰ ἁρμονικά· ἔσται γὰρ φωνή τε καὶ ὄψις παρὰ τὰ αἰσθητὰ καὶ τὰ καθ' ἕκαστα, ὥστε δῆλον ὅτι καὶ αἱ ἄλλαι αἰσθήσεις καὶ τὰ ἄλλα αἰσθητά· τί γὰρ μᾶλλον τάδε ἢ τάδε; εἰ δὲ ταῦτα, καὶ ζῷα ἔσονται, εἴπερ καὶ αἰσθήσεις. ἔτι γράφεται ἔνια καθόλου ὑπὸ τῶν μαθηματικῶν παρὰ ταύτας τὰς οὐσίας. ἔσται οὖν καὶ αὕτη τις ἄλλη οὐσία μεταξὺ κεχωρισμένη τῶν τ' ἰδεῶν καὶ τῶν μεταξύ, ἣ οὔτε ἀριθμός ἐστιν οὔτε στιγμαὶ οὔτε μέγεθος οὔτε χρόνος. εἰ δὲ τοῦτο ἀδύνατον, δῆλον ὅτι κἀκεῖνα ἀδύνατον εἶναι κεχωρισμένα τῶν αἰσθητῶν. ὅλως δὲ τοὐναντίον συμβαίνει καὶ τοῦ ἀληθοῦς καὶ τοῦ εἰωθότος ὑπολαμβάνεσθαι, εἴ τις θήσει οὕτως εἶναι τὰ μαθηματικὰ ὡς κεχωρισμένας τινὰς φύσεις.	The same goes for the objects of optics and harmonics: there will be sound and sight besides the perceptible, particular ones. So clearly there will also be the other senses and the other objects of perception; for why these rather than those? And if so, there will also be animals, since there will be senses. Further, some theorems are proved universally by mathematicians, going beyond these substances. There will, then, be this too, another substance, intermediate and separate from both the Forms and the intermediates—something that is neither number nor points nor magnitude nor time. But if this is impossible, clearly the others too cannot be separate from perceptible things. In general, if one posits mathematical objects as existing in this way, as certain separate natures, the result is contrary both to the truth and to what is usually supposed.
ἀνάγκη γὰρ διὰ τὸ μὲν οὕτως εἶναι αὐτὰς προτέρας εἶναι τῶν αἰσθητῶν μεγεθῶν, κατὰ τὸ ἀληθὲς δὲ ὑστέρας· τὸ γὰρ ἀτελὲς μέγεθος γενέσει μὲν πρότερόν ἐστι, τῇ οὐσίᾳ δ' ὕστερον, οἷον ἄψυχον ἐμψύχου. ἔτι τίνι καὶ πότ' ἔσται ἓν	For because they exist in this way, they must be prior to perceptible magnitudes, whereas in truth they are posterior. For incomplete magnitude is prior in coming-to-be but posterior in substance,

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τὰ μαθηματικὰ μεγέθη; τὰ μὲν γὰρ ἐνταῦθα ψυχῇ ἢ μέρει ψυχῆς ἢ ἄλλῳ τινί, εὐλόγως (εἰ δὲ μή, πολλά, καὶ διαλύεται), ἐκείνοις δὲ διαιρετοῖς καὶ ποσοῖς οὖσι τί αἴτιον τοῦ ἓν εἶναι καὶ συμμένειν; ἔτι αἱ γενέσεις δηλοῦσιν. πρῶτον μὲν γὰρ ἐπὶ μῆκος γίγνεται, εἶτα ἐπὶ πλάτος, τελευταῖον δ' εἰς βάθος, καὶ τέλος ἔσχεν.

εἰ οὖν τὸ τῇ γενέσει ὕστερον τῇ οὐσίᾳ πρότερον, τὸ σῶμα πρότερον ἂν εἴη ἐπιπέδου καὶ μήκους· καὶ ταύτῃ καὶ τέλειον καὶ ὅλον μᾶλλον, ὅτι ἔμψυχον γίγνεται· γραμμὴ δὲ ἔμψυχος ἢ ἐπίπεδον πῶς ἂν εἴη; ὑπὲρ γὰρ τὰς αἰσθήσεις τὰς ἡμετέρας ἂν εἴη τὸ ἀξίωμα. ἔτι τὸ μὲν σῶμα οὐσία τις (ἤδη γὰρ ἔχει πως τὸ τέλειον), αἱ δὲ γραμμαὶ πῶς οὐσίαι; οὔτε γὰρ ὡς εἶδος καὶ μορφή τις, οἷον εἰ ἄρα ἡ ψυχὴ τοιοῦτον, οὔτε ὡς ἡ ὕλη, οἷον τὸ σῶμα· οὐθὲν γὰρ ἐκ γραμμῶν οὐδ' ἐπιπέδων οὐδὲ στιγμῶν φαίνεται συνίστασθαι δυνάμενον, εἰ δ' ἦν οὐσία τις ὑλική, τοῦτ' ἂν ἐφαίνετο δυνάμενα πάσχειν. τῷ μὲν οὖν λόγῳ ἔστω πρότερα, [1077b] ἀλλ' οὐ πάντα ὅσα τῷ λόγῳ πρότερα καὶ τῇ οὐσίᾳ πρότερα.

1077b τῇ μὲν γὰρ οὐσίᾳ πρότερα ὅσα χωριζόμενα τῷ εἶναι ὑπερβάλλει, τῷ λόγῳ δὲ ὅσων οἱ λόγοι ἐκ τῶν λόγων· ταῦτα δὲ οὐχ ἅμα ὑπάρχει. εἰ γὰρ μὴ ἔστι τὰ πάθη παρὰ τὰς οὐσίας, οἷον κινούμενόν τι ἢ λευκόν, τοῦ λευκοῦ ἀνθρώπου τὸ λευκὸν πρότερον κατὰ τὸν λόγον ἀλλ' οὐ κατὰ τὴν οὐσίαν· οὐ γὰρ ἐνδέχεται εἶναι κεχωρισμένον ἀλλ' ἀεὶ ἅμα τῷ συνόλῳ ἐστίν (σύνολον δὲ λέγω τὸν ἄνθρωπον τὸν λευκόν), ὥστε φανερὸν ὅτι οὔτε τὸ ἐξ ἀφαιρέσεως πρότερον οὔτε τὸ ἐκ προσθέσεως ὕστερον· ἐκ προσθέσεως γὰρ τῷ λευκῷ ὁ λευκὸς ἄνθρωπος λέγεται.

ὅτι μὲν οὖν οὔτε οὐσίαι μᾶλλον τῶν σωμάτων εἰσὶν οὔτε πρότερα τῷ εἶναι τῶν αἰσθητῶν ἀλλὰ τῷ λόγῳ μόνον, οὔτε κεχωρισμένα που εἶναι δυνατόν, εἴρηται ἱκανῶς· ἐπεὶ δ' οὐδ' ἐν τοῖς αἰσθητοῖς ἐνεδέχετο αὐτὰ εἶναι, φανερὸν ὅτι ἢ ὅλως οὐκ ἔστιν ἢ τρόπον τινὰ ἔστι καὶ διὰ τοῦτο οὐχ ἁπλῶς ἔστιν· πολλαχῶς γὰρ τὸ εἶναι λέγομεν.

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as the lifeless is to the living. Further, by virtue of what, and when, will mathematical magnitudes be one? Things here are one by virtue of soul, or a part of soul, or something else, as is reasonable (otherwise they are many and fall apart); but in the case of those magnitudes, which are divisible and quantities, what is the cause of their being one and holding together? Further, the way they come to be shows this. They are generated first in length, then in breadth, and finally in depth, and then the process is complete.

If, then, what is posterior in coming-to-be is prior in substance, body will be prior to plane and length; and in this way it is also more complete and more a whole, because it can come to be ensouled. But how could a line or a plane be ensouled? The supposition would be beyond the reach of our senses. Further, body is a kind of substance (for it already has completeness in a way), but how can lines be substances? Not as a form or shape, as the soul perhaps is, nor as matter, as body is; for nothing is observed that can be composed of lines or planes or points, whereas if they were a kind of material substance, things would be observed that could be so composed. Let them be prior in account, then; [1077b] but not everything that is prior in account is also prior in substance.

For things are prior in substance when, being separated, they surpass others in being; they are prior in account when their accounts are the components of the other things' accounts. And these two kinds of priority do not go together. For if attributes do not exist apart from substances—something moving, for instance, or pale—then pale is prior to the pale human being in account, but not in substance. For it cannot exist separately, but always exists together with the composite (by "composite" I mean the pale human being). So it is clear that neither is what results from abstraction prior, nor what results from addition posterior; for it is by adding something to pale that we speak of the pale human being.

It has been adequately stated, then, that mathematical objects are not more substances than bodies are, nor prior in being to perceptible things, but only in account, and that they cannot exist separately anywhere. And since it turned out that they could not exist in perceptible things either, it is

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	clear that either they do not exist at all, or they exist in a certain way and so do not exist without qualification. For we speak of being in many senses.

HOW MATHEMATICAL OBJECTS EXIST

Mathematics studies perceptible things, but not as perceptible; its objects exist in a qualified way.

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ὥσπερ γὰρ καὶ τὰ καθόλου ἐν τοῖς μαθήμασιν οὐ περὶ κεχωρισμένων ἐστὶ παρὰ τὰ μεγέθη καὶ τοὺς ἀριθμοὺς ἀλλὰ περὶ τούτων μέν, οὐχ ᾗ δὲ τοιαῦτα οἷα ἔχειν μέγεθος ἢ εἶναι διαιρετά, δῆλον ὅτι ἐνδέχεται καὶ περὶ τῶν αἰσθητῶν μεγεθῶν εἶναι καὶ λόγους καὶ ἀποδείξεις, μὴ ᾗ δὲ αἰσθητὰ ἀλλ' ᾗ τοιαδί.	For just as the universal propositions in mathematics are not about separate objects existing besides magnitudes and numbers, but are about these—not, however, as things that have magnitude or are divisible—it is clear that there can also be both accounts and demonstrations about perceptible magnitudes, not as perceptible but as having a certain character.
ὥσπερ γὰρ καὶ ᾗ κινούμενα μόνον πολλοὶ λόγοι εἰσί, χωρὶς τοῦ τί ἕκαστόν ἐστι τῶν τοιούτων καὶ τῶν συμβεβηκότων αὐτοῖς, καὶ οὐκ ἀνάγκη διὰ ταῦτα ἢ κεχωρισμένον τι εἶναι κινούμενον τῶν αἰσθητῶν ἢ ἐν τούτοις τινὰ φύσιν εἶναι ἀφωρισμένην, οὕτω καὶ ἐπὶ τῶν κινουμένων ἔσονται λόγοι καὶ ἐπιστῆμαι, οὐχ ᾗ κινούμενα δὲ ἀλλ' ᾗ σώματα μόνον, καὶ πάλιν ᾗ ἐπίπεδα μόνον καὶ ᾗ μήκη μόνον, καὶ ᾗ διαιρετὰ καὶ ᾗ ἀδιαίρετα ἔχοντα δὲ θέσιν καὶ ᾗ ἀδιαίρετα μόνον, ὥστ' ἐπεὶ ἁπλῶς λέγειν ἀληθὲς μὴ μόνον τὰ χωριστὰ εἶναι ἀλλὰ καὶ τὰ μὴ χωριστά (οἷον κινούμενα εἶναι), καὶ τὰ μαθηματικὰ ὅτι ἔστιν ἁπλῶς ἀληθὲς εἰπεῖν, καὶ τοιαῦτά γε οἷα λέγουσιν.	For just as there are many accounts of things solely as moving, apart from what each such thing is and from their accidental attributes—and it does not follow from this that there must be something moving separate from perceptible things, or some distinct nature in them—so too there will be accounts and sciences of moving things, not as moving but only as bodies, and again only as planes, and only as lengths, and as divisible, and as indivisible but having position, and only as indivisible. So, since it is true to say without qualification not only that separable things exist but also that inseparable things exist (that moving things exist, for instance), it is also true to say without qualification that mathematical objects exist, and that they are such as the mathematicians say.
καὶ ὥσπερ καὶ τὰς ἄλλας ἐπιστήμας ἁπλῶς ἀληθὲς εἰπεῖν τούτου εἶναι, οὐχὶ τοῦ συμβεβηκότος (οἷον ὅτι λευκοῦ, εἰ τὸ ὑγιεινὸν λευκόν, ἡ δ' ἔστιν ὑγιεινοῦ) ἀλλ' ἐκείνου οὗ ἐστὶν ἑκάστη, [1078a] εἰ ⟨ᾗ⟩ ὑγιεινὸν ὑγιεινοῦ, εἰ δ' ᾗ ἄνθρωπος ἀνθρώπου, οὕτω καὶ τὴν γεωμετρίαν· οὐκ εἰ συμβέβηκεν αἰσθητὰ εἶναι ὧν ἐστί, μὴ ἔστι δὲ ᾗ αἰσθητά, οὐ τῶν αἰσθητῶν ἔσονται αἱ μαθηματικαὶ ἐπιστῆμαι, οὐ μέντοι οὐσὲ παρὰ ταῦτα ἄλλων κεχωρισμένων. πολλὰ δὲ συμβέβηκε καθ' αὑτὰ τοῖς πράγμασιν ᾗ ἕκαστον ὑπάρχει τῶν τοιούτων, ἐπεὶ καὶ ᾗ θῆλυ τὸ ζῷον καὶ ᾗ ἄρρεν, ἴδια πάθη ἔστιν (καίτοι οὐκ ἔστι τι θῆλυ οὐδ' ἄρρεν κεχωρισμένον τῶν ζῴων)· ὥστε καὶ ᾗ μήκη μόνον καὶ ᾗ ἐπίπεδα.	And just as it is true to say, without qualification, of the other sciences too that each is of its own object—not of what is accidental to it (not of the white, for instance, if the healthy is white and the science is of the healthy) but of that which each science is of: [1078a] of the healthy if it studies things as healthy, of human beings if it studies them as human—so it is with geometry too. If the things it is about happen to be perceptible, but it does not study them as perceptible, the mathematical sciences will not for that reason be sciences of perceptible things—nor, on the other hand, of other things separate from these. Many attributes belong to things in their own right insofar as each such character belongs to them: there are attributes peculiar to an animal as female and as male,

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for instance (yet there is no female or male separate from animals). So too there are attributes of things as lengths only, and as planes.

1078a καὶ ὅσῳ δὴ ἂν περὶ προτέρων τῷ λόγῳ καὶ ἁπλουστέρων, τοσούτῳ μᾶλλον ἔχει τὸ ἀκριβές (τοῦτο δὲ τὸ ἁπλοῦν ἐστίν), ὥστε ἄνευ τε μεγέθους μᾶλλον ἢ μετὰ μεγέθους, καὶ μάλιστα ἄνευ κινήσεως, ἐὰν δὲ κίνησιν, μάλιστα τὴν πρώτην· ἁπλουστάτη γάρ, καὶ ταύτης ἡ ὁμαλή. ὁ δ' αὐτὸς λόγος καὶ περὶ ἁρμονικῆς καὶ ὀπτικῆς· οὐδετέρα γὰρ ᾗ ὄψις ἢ ᾗ φωνὴ θεωρεῖ, ἀλλ' ᾗ γραμμαὶ καὶ ἀριθμοί (οἰκεῖα μέντοι ταῦτα πάθη ἐκείνων), καὶ ἡ μηχανικὴ δὲ ὡσαύτως, ὥστ' εἴ τις θέμενος κεχωρισμένα τῶν συμβεβηκότων σκοπεῖ τι περὶ τούτων ᾗ τοιαῦτα, οὐθὲν διὰ τοῦτο ψεῦδος ψεύσεται, ὥσπερ οὐδ' ὅταν ἐν τῇ γῇ γράφῃ καὶ ποδιαίαν φῇ τὴν μὴ ποδιαίαν· οὐ γὰρ ἐν ταῖς προτάσεσι τὸ ψεῦδος.

And the more the things we are dealing with are prior in definition and simpler, the more precision the knowledge has (for precision just is simplicity). So there is more precision in a science that leaves magnitude aside than in one that includes it, and most of all in one that leaves motion aside; and if it does deal with motion, the most precision comes with the primary motion, since it is the simplest—and within this, with uniform motion. The same account holds for harmonics and optics. Neither studies its objects as sight or as sound, but as lines and numbers (though these are attributes proper to sight and sound). And mechanics is the same. So if someone posits attributes as separate from what they belong to and studies something about them as such, he will not for that reason say anything false—any more than someone who draws a line on the ground and calls it a foot long when it isn't. The falsehood is not in the premises.

ἄριστα δ' ἂν οὕτω θεωρηθείη ἕκαστον, εἴ τις τὸ μὴ κεχωρισμένον θείη χωρίσας, ὅπερ ὁ ἀριθμητικὸς ποιεῖ καὶ ὁ γεωμέτρης. ἓν μὲν γὰρ καὶ ἀδιαίρετον ὁ ἄνθρωπος ᾗ ἄνθρωπος· ὁ δ' ἔθετο ἓν ἀδιαίρετον, εἶτ' ἐθεώρησεν εἴ τι τῷ ἀνθρώπῳ συμβέβηκεν ᾗ ἀδιαίρετος. ὁ δὲ γεωμέτρης οὔθ' ᾗ ἄνθρωπος οὔθ' ᾗ ἀδιαίρετος ἀλλ' ᾗ στερεόν. ἃ γὰρ κἂν εἰ μή που ἦν ἀδιαίρετος ὑπῆρχεν αὐτῷ, δῆλον ὅτι καὶ ἄνευ τούτων ἐνδέχεται αὐτῷ ὑπάρχειν [τὸ δυνατόν], ὥστε διὰ τοῦτο ὀρθῶς οἱ γεωμέτραι λέγουσι, καὶ περὶ ὄντων διαλέγονται, καὶ ὄντα ἐστίν· διττὸν γὰρ τὸ ὄν, τὸ μὲν ἐντελεχείᾳ τὸ δ' ὑλικῶς.

Each thing would be studied best in this way: by positing as separate what is not separate, which is just what the arithmetician and the geometer do. A human being, as human being, is one and indivisible. The arithmetician posits him as one indivisible thing, and then studies whether anything belongs to the human being as indivisible. The geometer studies him neither as human being nor as indivisible, but as a solid. For clearly the attributes that would belong to him even if he were somehow not indivisible can belong to him without those features too. That is why geometers speak correctly: they are talking about things that are, and these things are. For being is twofold: one kind in actuality, the other as matter.

ἐπεὶ δὲ τὸ ἀγαθὸν καὶ τὸ καλὸν ἕτερον (τὸ μὲν γὰρ ἀεὶ ἐν πράξει, τὸ δὲ καλὸν καὶ ἐν τοῖς ἀκινήτοις), οἱ φάσκοντες οὐδὲν λέγειν τὰς μαθηματικὰς ἐπιστήμας περὶ καλοῦ ἢ ἀγαθοῦ ψεύδονται. λέγουσι γὰρ καὶ δεικνύουσι μάλιστα· οὐ γὰρ εἰ μὴ ὀνομάζουσι τὰ δ' ἔργα καὶ τοὺς λόγους δεικνύουσιν, οὐ λέγουσι περὶ αὐτῶν. τοῦ δὲ καλοῦ μέγιστα εἴδη τάξις καὶ συμμετρία καὶ τὸ ὡρισμένον, 1078b ἃ μάλιστα δεικνύουσιν αἱ μαθηματικαὶ ἐπιστῆμαι. καὶ ἐπεί γε πολλῶν αἴτια φαίνεται ταῦτα (λέγω δ' οἷον ἡ τάξις καὶ τὸ ὡρισμένον), δῆλον ὅτι λέγοιεν ἂν καὶ τὴν τοιαύτην αἰτίαν τὴν ὡς τὸ καλὸν αἴτιον τρόπον τινά. μᾶλλον δὲ γνωρίμως ἐν ἄλλοις περὶ αὐτῶν ἐροῦμεν.

Since the good and the beautiful are different (the good is always found in action, while the beautiful is found in unchanging things too), those who claim that the mathematical sciences say nothing about the beautiful or the good are mistaken. They do speak of them, and show them more than anything. It doesn't follow that because they don't name them, while showing their effects and their ratios, they aren't speaking about them. The chief forms of beauty are order, symmetry, and definiteness, 1078b which the mathematical sciences display most of all. And since these (I mean order and

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	definiteness, for instance) are evidently causes of many things, clearly these sciences would also, in a way, speak of this sort of cause—the beautiful as a cause. But we will speak about these matters more clearly elsewhere.

HOW THE THEORY OF FORMS AROSE

Socrates sought universal definitions; Plato separated the universals and called them Forms.

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1078b περὶ μὲν οὖν τῶν μαθηματικῶν, ὅτι τε ὄντα ἐστὶ καὶ πῶς ὄντα, καὶ πῶς πρότερα καὶ πῶς οὐ πρότερα, τοσαῦτα εἰρήσθω· περὶ δὲ τῶν ἰδεῶν πρῶτον αὐτὴν τὴν κατὰ τὴν ἰδέαν δόξαν ἐπισκεπτέον, μηθὲν συνάπτοντας πρὸς τὴν τῶν ἀριθμῶν φύσιν, ἀλλ' ὡς ὑπέλαβον ἐξ ἀρχῆς οἱ πρῶτοι τὰς ἰδέας φήσαντες εἶναι. συνέβη δ' ἡ περὶ τῶν εἰδῶν δόξα τοῖς εἰποῦσι διὰ τὸ πεισθῆναι περὶ τῆς ἀληθείας τοῖς Ἡρακλειτείοις λόγοις ὡς πάντων τῶν αἰσθητῶν ἀεὶ ῥεόντων, ὥστ' εἴπερ ἐπιστήμη τινὸς ἔσται καὶ φρόνησις, ἑτέρας δεῖν τινὰς φύσεις εἶναι παρὰ τὰς αἰσθητὰς μενούσας· οὐ γὰρ εἶναι τῶν ῥεόντων ἐπιστήμην.	About mathematical objects, then—that they are, and in what sense they are, and in what sense they are prior and in what sense not—let this much be said. As for the Forms, we must first examine the theory of Forms on its own, without connecting it to the nature of numbers, but as it was understood from the start by those who first said there were Forms. The theory of Forms occurred to those who proposed it because they were persuaded of the truth of the Heraclitean arguments that all perceptible things are always flowing. So if there is to be knowledge and understanding about anything, there must be certain other natures besides the perceptible ones, natures that stay put; for there is no knowledge of things that flow.
Σωκράτους δὲ περὶ τὰς ἠθικὰς ἀρετὰς πραγματευομένου καὶ περὶ τούτων ὁρίζεσθαι καθόλου ζητοῦντος πρώτου (τῶν μὲν γὰρ φυσικῶν ἐπὶ μικρὸν Δημόκριτος ἥψατο μόνον καὶ ὡρίσατό πως τὸ θερμὸν καὶ τὸ ψυχρόν· οἱ δὲ Πυθαγόρειοι πρότερον περί τινων ὀλίγων, ὧν τοὺς λόγους εἰς τοὺς ἀριθμοὺς ἀνῆπτον, οἷον τί ἐστι καιρὸς ἢ τὸ δίκαιον ἢ γάμος· ἐκεῖνος δ' εὐλόγως ἐζήτει τὸ τί ἐστιν· συλλογίζεσθαι γὰρ ἐζήτει, ἀρχὴ δὲ τῶν συλλογισμῶν τὸ τί ἐστιν· διαλεκτικὴ γὰρ ἰσχὺς οὔπω τότ' ἦν ὥστε δύνασθαι καὶ χωρὶς τοῦ τί ἐστι τἀναντία ἐπισκοπεῖν, καὶ τῶν ἐναντίων εἰ ἡ αὐτὴ ἐπιστήμη· δύο γάρ ἐστιν ἅ τις ἂν ἀποδοίη Σωκράτει δικαίως, τούς τ' ἐπακτικοὺς λόγους καὶ τὸ ὁρίζεσθαι καθόλου·	Socrates, however, was occupied with the excellences of character, and was the first to seek universal definitions of them. (Among the natural philosophers, Democritus touched on this only a little, and defined the hot and the cold after a fashion; and the Pythagoreans, earlier, had done so for a few things, whose definitions they tied to numbers—what opportunity is, for instance, or justice, or marriage. But Socrates had good reason to look for the what-it-is, since he was trying to reason deductively, and the starting point of deductions is the what-it-is. For there was not yet at that time the dialectical power to examine contraries even apart from the what-it-is, and whether the same science deals with contraries. There are two things one might fairly credit to Socrates: inductive arguments and universal definition;
ταῦτα γάρ ἐστιν ἄμφω περὶ ἀρχὴν ἐπιστήμης)·—ἀλλ' ὁ μὲν Σωκράτης τὰ καθόλου οὐ χωριστὰ ἐποίει οὐδὲ τοὺς ὁρισμούς· οἱ δ' ἐχώρισαν, καὶ τὰ τοιαῦτα τῶν ὄντων ἰδέας προσηγόρευσαν, ὥστε συνέβαινεν αὐτοῖς σχεδὸν τῷ αὐτῷ λόγῳ πάντων ἰδέας εἶναι τῶν καθόλου λεγομένων, καὶ παραπλήσιον ὥσπερ ἂν εἴ τις ἀριθμῆσαι βουλόμενος ἐλαττόνων μὲν ὄντων οἴοιτο μὴ δυνήσεσθαι, πλείω δὲ	both of these concern the starting point of knowledge.) But Socrates did not make the universals or the definitions separate. The others did separate them, and called such beings Forms. So it followed for them, by almost the same argument, that there are Forms of everything spoken of universally. It is rather as if someone who wanted to count things

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ποιήσας ἀριθμοίη· πλείω γάρ ἐστι τῶν καθ' ἕκαστα αἰσθητῶν ὡς εἰπεῖν τὰ εἴδη, [1079a] περὶ ὧν ζητοῦντες τὰς αἰτίας ἐκ τούτων ἐκεῖ προῆλθον· καθ' ἕκαστόν τε γὰρ ὁμώνυμόν ⟨τι⟩ ἔστι καὶ παρὰ τὰς οὐσίας, τῶν τε ἄλλων ἓν ἔστιν ἐπὶ πολλῶν, καὶ ἐπὶ τοῖσδε καὶ ἐπὶ τοῖς ἀϊδίοις.

1079a ἔτι καθ' οὓς τρόπους δείκνυται ὅτι ἔστι τὰ εἴδη, κατ' οὐθένα φαίνεται τούτων· ἐξ ἐνίων μὲν γὰρ οὐκ ἀνάγκη γίγνεσθαι συλλογισμόν, ἐξ ἐνίων δὲ καὶ οὐχ ὧν οἴονται τούτων εἴδη γίγνεται. κατά τε γὰρ τοὺς λόγους τοὺς ἐκ τῶν ἐπιστημῶν ἔσται εἴδη πάντων ὅσων ἐπιστῆμαι εἰσίν, καὶ κατὰ τὸ ἓν ἐπὶ πολλῶν καὶ τῶν ἀποφάσεων, κατὰ δὲ τὸ νοεῖν τι φθαρέντος τῶν φθαρτῶν· φάντασμα γάρ τι τούτων ἔστιν. ἔτι δὲ οἱ ἀκριβέστατοι τῶν λόγων οἱ μὲν τῶν πρός τι ποιοῦσιν ἰδέας, ὧν οὔ φασιν εἶναι καθ' αὑτὸ γένος, οἱ δὲ τὸν τρίτον ἄνθρωπον λέγουσιν.

ὅλως τε ἀναιροῦσιν οἱ περὶ τῶν εἰδῶν λόγοι ἃ μᾶλλον βούλονται εἶναι οἱ λέγοντες εἴδη τοῦ τὰς ἰδέας εἶναι· συμβαίνει γὰρ μὴ εἶναι πρῶτον τὴν δυάδα ἀλλὰ τὸν ἀριθμόν, καὶ τούτου τὸ πρός τι καὶ τοῦτο τοῦ καθ' αὑτό, καὶ πάνθ' ὅσα τινὲς ἀκολουθήσαντες ταῖς περὶ τῶν εἰδῶν δόξαις ἠναντιώθησαν ταῖς ἀρχαῖς.

ἔτι κατὰ μὲν τὴν ὑπόληψιν καθ' ἣν φασιν εἶναι τὰς ἰδέας οὐ μόνον τῶν οὐσιῶν ἔσονται εἴδη ἀλλὰ καὶ ἄλλων πολλῶν (τὸ γὰρ νόημα ἓν οὐ μόνον περὶ τὰς οὐσίας ἀλλὰ καὶ κατὰ μὴ οὐσιῶν ἐστί, καὶ ἐπιστῆμαι οὐ μόνον τῆς οὐσίας εἰσί· συμβαίνει δὲ καὶ ἄλλα μυρία τοιαῦτα)· κατὰ δὲ τὸ ἀναγκαῖον καὶ τὰς δόξας τὰς περὶ αὐτῶν, εἰ ἔστι μεθεκτὰ τὰ εἴδη, τῶν οὐσιῶν ἀναγκαῖον ἰδέας εἶναι μόνον· οὐ γὰρ κατὰ συμβεβηκὸς μετέχονται ἀλλὰ δεῖ ταύτῃ ἑκάστου μετέχειν ᾗ μὴ καθ' ὑποκειμένου λέγονται (λέγω δ' οἷον, εἴ τι αὐτοῦ διπλασίου μετέχει, τοῦτο καὶ ἀϊδίου μετέχει, ἀλλὰ κατὰ συμβεβηκός· συμβέβηκε γὰρ τῷ διπλασίῳ ἀϊδίῳ εἶναι), ὥστε ἔσται οὐσία τὰ εἴδη· ταὐτὰ δ' ἐνταῦθα οὐσίαν σημαίνει κἀκεῖ· ἢ τί ἔσται τὸ εἶναι φάναι τι παρὰ ταῦτα, τὸ ἓν ἐπὶ πολλῶν;

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thought he couldn't do it while they were fewer, but could count them once he had made them more. For the Forms are, one might say, more numerous than the perceptible particulars [1079a] whose causes they were seeking when they went from these to those. For corresponding to each thing there is something with the same name, apart from the substances; and for other things too there is a one over many, both for things here and for eternal things.

Further, of the ways in which it is proved that the Forms exist, none is convincing. From some no deduction necessarily follows; from others there come to be Forms even of things of which they think there are none. For according to the arguments from the sciences there will be Forms of all the things there are sciences of; according to the one-over-many argument, Forms even of negations; and according to the argument that we think of something even when it has perished, Forms of perishable things, since there is an image of these. Further, of the most precise arguments, some produce Forms of relatives, of which they deny there is a kind in its own right, while others bring in the "third man."

And in general the arguments for the Forms do away with things that those who speak of Forms care about more than they care about the existence of the Forms. For it follows that the dyad is not first, but number; and that the relative is prior to number, and prior to what is in its own right—and all the other points on which some people, following out the opinions about the Forms, have come into conflict with the principles.

Further, according to the assumption on which they say the Forms exist, there will be Forms not only of substances but of many other things as well. (For the thought is one not only in the case of substances but also of non-substances, and there are sciences not only of substance; and countless other such consequences follow.) But according to what necessarily follows, and to the opinions about the Forms, if the Forms can be participated in, there must be Forms only of substances. For they are not participated in accidentally: a thing must participate in each Form insofar as the Form is not said of an underlying subject. (I mean, for instance, that if something participates in the double itself, it also participates in the eternal, but

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	accidentally, since it is accidental to the double to be eternal.) So the Forms will be substance. But the same things signify substance here and there. Otherwise, what will it mean to say that there is something apart from these things, the one over many?
καὶ εἰ μὲν ταὐτὸ εἶδος τῶν ἰδεῶν καὶ τῶν μετεχόντων, ἔσται τι κοινόν (τί γὰρ μᾶλλον ἐπὶ τῶν φθαρτῶν δυάδων, καὶ τῶν δυάδων τῶν πολλῶν μὲν ἀϊδίων δέ, τὸ δυὰς ἓν καὶ ταὐτόν, ἢ ἐπ' αὐτῆς καὶ τῆς τινός;)· εἰ δὲ μὴ τὸ αὐτὸ εἶδος, [1079b] ὁμώνυμα ἂν εἴη, καὶ ὅμοιον ὥσπερ ἂν εἴ τις καλοῖ ἄνθρωπον τόν τε Καλλίαν καὶ τὸ ξύλον, μηδεμίαν κοινωνίαν ἐπιβλέψας αὐτῶν. εἰ δὲ τὰ μὲν ἄλλα τοὺς κοινοὺς λόγους ἐφαρμόττειν θήσομεν τοῖς εἴδεσιν, οἷον ἐπ' αὐτὸν τὸν κύκλον σχῆμα ἐπίπεδον καὶ τὰ λοιπὰ μέρη τοῦ λόγου, τὸ δ' ὃ ἔστι προστεθήσεται, σκοπεῖν δεῖ μὴ κενὸν ᾖ τοῦτο παντελῶς. τίνι τε γὰρ προστεθήσεται; τῷ μέσῳ ἢ τῷ ἐπιπέδῳ ἢ πᾶσιν;	And if the Forms and the things that participate in them have the same form, there will be something common to them. (For why should "dyad" be one and the same in the case of perishable dyads and of dyads that are many but eternal, any more than in the case of the dyad itself and some particular dyad?) But if the form is not the same, [1079b] they will share only the name. It will be as if someone called both Callias and a piece of wood "human being," without having noticed anything common to them. And suppose we posit that in other respects the common definitions fit the Forms —"plane figure," for instance, and the other parts of the definition apply to the circle itself—but that "what really is" has to be added. We must consider whether this is not completely empty. To what will it be added? To "center," or to "plane," or to all of them?
1079b πάντα γὰρ τὰ ἐν τῇ οὐσίᾳ ἰδέαι, οἷον τὸ ζῷον καὶ τὸ δίπουν. ἔτι δῆλον ὅτι ἀνάγκη αὐτὸ εἶναί τι, ὥσπερ τὸ ἐπίπεδον, φύσιν τινὰ ἢ πᾶσιν ἐνυπάρξει τοῖς εἴδεσιν ὡς γένος.	For all the items in the substance are Forms: animal, for instance, and two-footed. Further, clearly the added item must itself be something, just as "plane" is: some nature that will be present in all the Forms as their genus.

WHAT DO THE FORMS CONTRIBUTE?

The Forms explain neither change, nor knowledge, nor being; calling them paradigms is empty metaphor.

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πάντων δὲ μάλιστα διαπορήσειεν ἄν τις τί ποτε συμβάλλονται τὰ εἴδη ἢ τοῖς ἀϊδίοις τῶν αἰσθητῶν ἢ τοῖς γιγνομένοις καὶ [τοῖς] φθειρομένοις· οὔτε γὰρ κινήσεώς ἐστιν οὔτε μεταβολῆς οὐδεμιᾶς αἴτια αὐτοῖς. ἀλλὰ μὴν οὔτε πρὸς τὴν ἐπιστήμην οὐθὲν βοηθεῖ τὴν τῶν ἄλλων (οὐδὲ γὰρ οὐσία ἐκεῖνα τούτων· ἐν τούτοις γὰρ ἂν ἦν), οὔτ' εἰς τὸ εἶναι, μὴ ἐνυπάρχοντά γε τοῖς μετέχουσιν· οὕτω μὲν γὰρ ἴσως αἴτια δόξειεν ἂν εἶναι ὡς τὸ λευκὸν μεμιγμένον τῷ λευκῷ, ἀλλ' οὗτος μὲν ὁ λόγος λίαν εὐκίνητος, ὃν Ἀναξαγόρας μὲν πρότερος Εὔδοξος δὲ ὕστερος ἔλεγε διαπορῶν καὶ ἕτεροί τινες (ῥᾴδιον γὰρ πολλὰ συναγαγεῖν καὶ ἀδύνατα πρὸς τὴν τοιαύτην δόξαν)· ἀλλὰ μὴν οὐδὲ ἐκ τῶν εἰδῶν ἐστὶ τἆλλα κατ' οὐθένα τρόπον τῶν εἰωθότων λέγεσθαι.	Most of all, one might be puzzled about what on earth the Forms contribute, either to the perceptible things that are eternal or to those that come to be and pass away. For they are not causes of any motion or change in them. Nor do they help at all toward knowledge of the other things (for they are not their substance; otherwise they would be in them), nor toward their being, since they are not present in the things that participate in them. If they were, they might perhaps seem to be causes in the way white is, by being mixed into the white thing. But this argument, which Anaxagoras first and Eudoxus later put forward while working through the puzzles, as did some others, is very easily overturned (it is easy to collect many im-

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possible consequences against such a view). Nor, moreover, do the other things come from the Forms in any of the usual senses of "from."

τὸ δὲ λέγειν παραδείγματα εἶναι καὶ μετέχειν αὐτῶν τὰ ἄλλα κενολογεῖν ἐστὶ καὶ μεταφορὰς λέγειν ποιητικάς. τί γάρ ἐστι τὸ ἐργαζόμενον πρὸς τὰς ἰδέας ἀποβλέπον; ἐνδέχεταί τε καὶ εἶναι καὶ γίγνεσθαι ὁτιοῦν καὶ μὴ εἰκαζόμενον, ὥστε καὶ ὄντος Σωκράτους καὶ μὴ ὄντος γένοιτ' ἂν οἷος Σωκράτης· ὁμοίως δὲ δῆλον ὅτι κἂν εἰ ἦν ὁ Σωκράτης ἀΐδιος. ἔσται τε πλείω παραδείγματα τοῦ αὐτοῦ, ὥστε καὶ εἴδη, οἷον τοῦ ἀνθρώπου τὸ ζῷον καὶ τὸ δίπουν, ἅμα δὲ καὶ αὐτοάνθρωπος. ἔτι οὐ μόνον τῶν αἰσθητῶν παραδείγματα τὰ εἴδη ἀλλὰ καὶ αὐτῶν, οἷον τὸ γένος τῶν ὡς γένους εἰδῶν· ὥστε τὸ αὐτὸ ἔσται παράδειγμα καὶ εἰκών.

To say that the Forms are paradigms and that the other things participate in them is to talk emptily and use poetic metaphors. For what is it that does the work, looking to the Forms? Anything can both be and come to be like something else without being modeled on it, so that someone like Socrates might come to be whether Socrates exists or not; and clearly the same would hold even if Socrates were eternal. There will also be several paradigms of the same thing, and so several Forms: of human being, for instance, animal and two-footed, and at the same time human-being-itself too. Further, the Forms will be paradigms not only of perceptible things but of Forms themselves, as the genus is of the species within it; so the same thing will be both paradigm and image.

ἔτι δόξειεν ἂν ἀδύνατον χωρὶς εἶναι τὴν οὐσίαν καὶ οὗ ἡ οὐσία· 1080a ὥστε πῶς ἂν αἱ ἰδέαι οὐσίαι τῶν πραγμάτων οὖσαι χωρὶς εἶεν; ἐν δὲ τῷ Φαίδωνι τοῦτον λέγεται τὸν τρόπον, ὡς καὶ τοῦ εἶναι καὶ τοῦ γίγνεσθαι αἴτια τὰ εἴδη ἐστίν· καίτοι τῶν εἰδῶν ὄντων ὅμως οὐ γίγνεται ἂν μὴ ᾖ τὸ κινῆσον, καὶ πολλὰ γίγνεται ἕτερα, οἷον οἰκία καὶ δακτύλιος, ὧν οὔ φασιν εἶναι εἴδη· ὥστε δῆλον ὅτι ἐνδέχεται κἀκεῖνα, ὧν φασὶν ἰδέας εἶναι, καὶ εἶναι καὶ γίγνεσθαι διὰ τοιαύτας αἰτίας οἵας καὶ τὰ ῥηθέντα νῦν, ἀλλ' οὐ διὰ τὰ εἴδη. ἀλλὰ περὶ μὲν τῶν ἰδεῶν καὶ τοῦτον τὸν τρόπον καὶ διὰ λογικωτέρων καὶ ἀκριβεστέρων λόγων ἔστι πολλὰ συναγαγεῖν ὅμοια τοῖς τεθεωρημένοις.

Further, it would seem impossible for the substance to be separate from that of which it is the substance. 1080a So how could the Forms, if they are the substances of things, be separate? In the *Phaedo* it is stated in this way: that the Forms are causes both of being and of coming to be. Yet even if the Forms exist, nothing comes to be unless there is something to set it in motion; and many other things come to be, such as a house or a ring, of which they say there are no Forms. So clearly the things of which they say there are Forms can also both be and come to be through causes of the kind that produce the things just mentioned, and not because of the Forms. But about the Forms it is possible to collect many objections like those we have considered, both in this way and through more abstract and more precise arguments.

WAYS NUMBERS MIGHT EXIST

Aristotle lists the possible accounts of separate number and the thinkers who held each.

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1080a ἐπεὶ δὲ διώρισται περὶ τούτων, καλῶς ἔχει πάλιν θεωρῆσαι τὰ περὶ τοὺς ἀριθμοὺς συμβαίνοντα τοῖς λέγουσιν οὐσίας αὐτοὺς εἶναι χωριστὰς καὶ τῶν ὄντων αἰτίας πρώτας. ἀνάγκη δ', εἴπερ ἐστὶν ὁ ἀριθμὸς φύσις τις καὶ μὴ ἄλλη τίς ἐστιν αὐτοῦ ἡ οὐσία ἀλλὰ τοῦτ' αὐτό, ὥσπερ φασί τινες, ἤτοι εἶναι τὸ μὲν πρῶτόν τι αὐτοῦ τὸ δ' ἐχόμενον, ἕτερον ὂν τῷ εἴδει ἕκαστον,—καὶ τοῦτο ἢ ἐπὶ τῶν μονάδων εὐθὺς ὑπάρχει καὶ ἔστιν ἀσύμβλητος

Now that these points have been settled, it is well to consider again the consequences concerning numbers for those who say that numbers are separate substances and first causes of the things that are. If number is some nature, and its substance is nothing other than just this, as some say, then necessarily one of the following holds. Either there is a first of it and a next, each different in form—and

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ὁποιαοῦν μονὰς ὁποιᾳοῦν μονάδι, ἢ εὐθὺς ἐφεξῆς πᾶσαι καὶ συμβληταὶ ὁποιαιοῦν ὁποιαισοῦν, οἷον λέγουσιν εἶναι τὸν μαθηματικὸν ἀριθμόν (ἐν γὰρ τῷ μαθηματικῷ οὐδὲν διαφέρει οὐδεμία μονὰς ἑτέρα ἑτέρας)· ἢ τὰς μὲν συμβλητὰς τὰς δὲ μή (οἷον εἰ ἔστι μετὰ τὸ ἓν πρώτη ἡ δυάς, ἔπειτα ἡ τριὰς καὶ οὕτω δὴ ὁ ἄλλος ἀριθμός, εἰσὶ δὲ συμβληταὶ αἱ ἐν ἑκάστῳ ἀριθμῷ μονάδες, οἷον αἱ ἐν τῇ δυάδι τῇ πρώτῃ αὐταῖς, καὶ αἱ ἐν τῇ τριάδι τῇ πρώτῃ αὐταῖς, καὶ οὕτω δὴ ἐπὶ τῶν ἄλλων ἀριθμῶν· αἱ δ' ἐν τῇ δυάδι αὐτῇ πρὸς τὰς ἐν τῇ τριάδι αὐτῇ ἀσύμβλητοι, ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων τῶν ἐφεξῆς ἀριθμῶν·	this either holds directly of the units, so that any unit is incomparable with any unit; or they are all directly in succession, and any is comparable with any, as they say mathematical number is (for in mathematical number no unit differs in any way from another); or some are comparable and others not. (For instance, if after the One there comes first the dyad, then the triad, and so on for the rest of number, and the units within each number are comparable—those in the first dyad with each other, those in the first triad with each other, and so on with the other numbers—while those in the dyad-itself are incomparable with those in the triad-itself, and likewise with the other successive numbers;[2]

CHAPTER 6

GREEK	ENGLISH
διὸ καὶ ὁ μὲν μαθηματικὸς ἀριθμεῖται μετὰ τὸ ἓν δύο, πρὸς τῷ ἔμπροσθεν ἑνὶ ἄλλο ἕν, καὶ τὰ τρία πρὸς τοῖς δυσὶ τούτοις ἄλλο ἕν, καὶ ὁ λοιπὸς δὲ ὡσαύτως· οὗτος δὲ μετὰ τὸ ἓν δύο ἕτερα ἄνευ τοῦ ἑνὸς τοῦ πρώτου, καὶ ἡ τριὰς ἄνευ τῆς δυάδος, ὁμοίως δὲ καὶ ὁ ἄλλος ἀριθμός)· ἢ τὸν μὲν εἶναι τῶν ἀριθμῶν οἷος ὁ πρῶτος ἐλέχθη, τὸν δ' οἷον οἱ μαθηματικοὶ λέγουσι, τρίτον δὲ τὸν ῥηθέντα τελευταῖον· ἔτι τούτους ἢ χωριστοὺς εἶναι τοὺς ἀριθμοὺς τῶν πραγμάτων, [1080b] ἢ οὐ χωριστοὺς ἀλλ' ἐν τοῖς αἰσθητοῖς (οὐχ οὕτως δ' ὡς τὸ πρῶτον ἐπεσκοποῦμεν, ἀλλ' ὡς ἐκ τῶν ἀριθμῶν ἐνυπαρχόντων ὄντα τὰ αἰσθητά) ἢ τὸν μὲν αὐτῶν εἶναι τὸν δὲ μή, ἢ πάντας εἶναι.—οἱ μὲν οὖν τρόποι καθ' οὓς ἐνδέχεται αὐτοὺς εἶναι οὗτοί εἰσιν ἐξ ἀνάγκης μόνοι, σχεδὸν δὲ καὶ οἱ λέγοντες τὸ ἓν ἀρχὴν εἶναι καὶ οὐσίαν καὶ στοιχεῖον πάντων, καὶ ἐκ τούτου καὶ ἄλλου τινὸς εἶναι τὸν ἀριθμόν, ἕκαστος τούτων τινὰ τῶν τρόπων εἴρηκε, πλὴν τοῦ πάσας τὰς μονάδας εἶναι ἀσυμβλήτους.	that is why mathematical number is counted thus: after one, two, by adding another one to the previous one; and three by adding another one to these two; and the rest in the same way. But this kind of number is counted thus: after the One, a distinct two that does not include the first one, and a triad that does not include the dyad, and similarly with the rest of number.) Or else one kind of number is as first described, another as the mathematicians say, and a third the kind described last. Further, these numbers must either be separate from things, [1080b] or not separate but in perceptible things (not in the way we first considered, but in the sense that perceptible things are made of numbers present in them); or one kind is separate and another not, or all are.—These, then, are necessarily the only ways in which numbers can exist. And pretty much all who say that the One is the principle, substance, and element of all things, and that number comes from this and something else, have each stated one of these ways—except that no one has said that all the units are incomparable.
1080b καὶ τοῦτο συμβέβηκεν εὐλόγως· οὐ γὰρ ἐνδέχεται ἔτι ἄλλον τρόπον εἶναι παρὰ τοὺς εἰρημένους. οἱ μὲν οὖν ἀμφοτέρους φασὶν εἶναι τοὺς ἀριθμούς, τὸν μὲν ἔχοντα τὸ πρότερον καὶ ὕστερον τὰς ἰδέας, τὸν δὲ μαθηματικὸν παρὰ τὰς ἰδέας καὶ τὰ αἰσθητά, καὶ χωριστοὺς ἀμφοτέρους τῶν αἰσθητῶν· οἱ δὲ τὸν μαθηματικὸν μόνον	And this has turned out reasonably, since there cannot be yet another way besides those stated. Some say that both kinds of number exist: the kind that has a before and after, namely the Forms, and mathematical number besides the Forms and perceptible things, both separate from

2 "Comparable" units can be combined and counted together; "incomparable" ones cannot.

GREEK

ἀριθμὸν εἶναι, τὸν πρῶτον τῶν ὄντων, κεχωρισμένον τῶν αἰσθητῶν. καὶ οἱ Πυθαγόρειοι δ' ἕνα, τὸν μαθηματικόν, πλὴν οὐ κεχωρισμένον ἀλλ' ἐκ τούτου τὰς αἰσθητὰς οὐσίας συνεστάναι φασίν· τὸν γὰρ ὅλον οὐρανὸν κατασκευάζουσιν ἐξ ἀριθμῶν, πλὴν οὐ μοναδικῶν, ἀλλὰ τὰς μονάδας ὑπολαμβάνουσιν ἔχειν μέγεθος· ὅπως δὲ τὸ πρῶτον ἓν συνέστη ἔχον μέγεθος, ἀπορεῖν ἐοίκασιν. ἄλλος δέ τις τὸν πρῶτον ἀριθμὸν τὸν τῶν εἰδῶν ἕνα εἶναι, ἔνιοι δὲ καὶ τὸν μαθηματικὸν τὸν αὐτὸν τοῦτον εἶναι.

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perceptible things. Others say that only mathematical number exists, as the first of the things that are, separate from perceptible things. The Pythagoreans too recognize one kind, the mathematical, but not as separate; they say perceptible substances are composed of it. For they construct the whole heaven out of numbers—not numbers made of abstract units, though, since they suppose the units have magnitude. How the first one came to be constituted with magnitude, they seem to be at a loss to say. Someone else says that only the first kind of number, the number of the Forms, exists; and some say that mathematical number is the same as this.[3]

ὁμοίως δὲ καὶ περὶ τὰ μήκη καὶ περὶ τὰ ἐπίπεδα καὶ περὶ τὰ στερεά. οἱ μὲν γὰρ ἕτερα τὰ μαθηματικὰ καὶ τὰ μετὰ τὰς ἰδέας· τῶν δὲ ἄλλως λεγόντων οἱ μὲν τὰ μαθηματικὰ καὶ μαθηματικῶς λέγουσιν, ὅσοι μὴ ποιοῦσι τὰς ἰδέας ἀριθμοὺς μηδὲ εἶναί φασιν ἰδέας, οἱ δὲ τὰ μαθηματικά, οὐ μαθηματικῶς δέ· οὐ γὰρ τέμνεσθαι οὔτε μέγεθος πᾶν εἰς μεγέθη, οὔθ' ὁποιασοῦν μονάδας δυάδα εἶναι. μοναδικοὺς δὲ τοὺς ἀριθμοὺς εἶναι πάντες τιθέασι, πλὴν τῶν Πυθαγορείων, ὅσοι τὸ ἓν στοιχεῖον καὶ ἀρχήν φασιν εἶναι τῶν ὄντων· ἐκεῖνοι δ' ἔχοντας μέγεθος, καθάπερ εἴρηται πρότερον. ὁσαχῶς μὲν οὖν ἐνδέχεται λεχθῆναι περὶ αὐτῶν, καὶ ὅτι πάντες εἰσὶν εἰρημένοι οἱ τρόποι, φανερὸν ἐκ τούτων· ἔστι δὲ πάντα μὲν ἀδύνατα, μᾶλλον δ' ἴσως θάτερα τῶν ἑτέρων.

It is similar with lengths, planes, and solids. Some hold that mathematical ones are different from those that come after the Forms. Of those who speak otherwise, some speak of mathematical objects and speak of them mathematically—those who do not make the Forms numbers, or say there are Forms at all—while others speak of mathematical objects, but not mathematically: for they say that not every magnitude is divided into magnitudes, and that not just any two units make a dyad. All of them hold that numbers are made of abstract units, except the Pythagoreans—those who say the One is the element and principle of the things that are; but these say numbers have magnitude, as was said before. It is clear from this, then, in how many ways it is possible to speak about numbers, and that all the ways have been stated. All of them are impossible, though some perhaps more than others.

ARE UNITS COMPARABLE?

Whether units are comparable or not, form-numbers lead to absurd consequences.

GREEK

πρῶτον μὲν οὖν σκεπτέον εἰ συμβληταὶ αἱ μονάδες ἢ ἀσύμβλητοι, καὶ εἰ ἀσύμβλητοι, ποτέρως ὥνπερ διείλομεν. [1081a] ἔστι μὲν γὰρ ὁποιανοῦν εἶναι ὁποιᾳοῦν μονάδι ἀσύμβλητον, ἔστι δὲ τὰς ἐν αὐτῇ τῇ δυάδι πρὸς τὰς ἐν αὐτῇ τῇ τριάδι, καὶ οὕτως δὴ ἀσυμβλήτους εἶναι τὰς ἐν ἑκάστῳ τῷ πρώτῳ ἀριθμῷ πρὸς ἀλλήλας. εἰ μὲν οὖν πᾶσαι συμβληταὶ καὶ ἀδιάφοροι αἱ μονάδες, ὁ μαθηματικὸς γίγνεται ἀριθμὸς καὶ εἷς μόνος, καὶ τὰς

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First, then, we must examine whether the units are comparable or incomparable, and, if incomparable, in which of the ways we distinguished. [1081a] For it is possible that any unit is incomparable with any unit; and it is possible that those in the dyad-itself are incomparable with those in the triad-itself, and so that the units in each first number are incomparable with those in the others. Now if

3 The first view is usually taken to be Plato's, the second that of his successor Speusippus, and the last that of Xenocrates, who headed the Academy after Speusippus.

	GREEK	ENGLISH
	ἰδέας οὐκ ἐνδέχεται εἶναι τοὺς ἀριθμούς (ποῖος γὰρ ἔσται ἀριθμὸς αὐτὸ ἄνθρωπος ἢ ζῷον ἢ ἄλλο ὁτιοῦν τῶν εἰδῶν;	all the units are comparable and undifferentiated, we get mathematical number, and only that one kind, and the Forms cannot be the numbers. (For what sort of number will human-being-itself be, or animal-itself, or any other of the Forms?
1081a	ἰδέα μὲν γὰρ μία ἑκάστου, οἷον αὐτοῦ ἀνθρώπου μία καὶ αὐτοῦ ζῴου ἄλλη μία· οἱ δ' ὅμοιοι καὶ ἀδιάφοροι ἄπειροι, ὥστ' οὐθὲν μᾶλλον ἥδε ἡ τριὰς αὐτοάνθρωπος ἢ ὁποιαοῦν), εἰ δὲ μὴ εἰσὶν ἀριθμοὶ αἱ ἰδέαι, οὐδ' ὅλως οἷόν τε αὐτὰς εἶναι (ἐκ τίνων γὰρ ἔσονται ἀρχῶν αἱ ἰδέαι; ὁ γὰρ ἀριθμός ἐστιν ἐκ τοῦ ἑνὸς καὶ τῆς δυάδος τῆς ἀορίστου, καὶ αἱ ἀρχαὶ καὶ τὰ στοιχεῖα λέγονται τοῦ ἀριθμοῦ εἶναι, τάξαι τε οὔτε προτέρας ἐνδέχεται τῶν ἀριθμῶν αὐτὰς οὔθ' ὑστέρας)· εἰ δ' ἀσύμβλητοι αἱ μονάδες, καὶ οὕτως ἀσύμβλητοι ὥστε ἠτισοῦν ᾑτινιοῦν, οὔτε τὸν μαθηματικὸν ἐνδέχεται εἶναι τοῦτον τὸν ἀριθμόν (ὁ μὲν γὰρ μαθηματικὸς ἐξ ἀδιαφόρων, καὶ τὰ δεικνύμενα κατ' αὐτοῦ ὡς ἐπὶ τοιούτου ἁρμόττει) οὔτε τὸν τῶν εἰδῶν.	There is one Form of each thing—one of human-being-itself, for instance, and another one of animal-itself—whereas similar and undifferentiated numbers are infinitely many, so that this particular triad is no more human-being-itself than any other.) And if the Forms are not numbers, they cannot exist at all. (For from what principles will the Forms come? Number comes from the One and the indefinite dyad, and these are said to be the principles and elements of number; and the Forms cannot be ranked either as prior to the numbers or as posterior.) But if the units are incomparable, and incomparable in such a way that any is incomparable with any, this number can be neither mathematical number (for mathematical number consists of undifferentiated units, and what is proved of it fits on that basis) nor the number of the Forms.
	οὐ γὰρ ἔσται ἡ δυὰς πρώτη ἐκ τοῦ ἑνὸς καὶ τῆς ἀορίστου δυάδος, ἔπειτα οἱ ἑξῆς ἀριθμοί, ὡς λέγεται δυάς, τριάς, τετράς—ἅμα γὰρ αἱ ἐν τῇ δυάδι τῇ πρώτῃ μονάδες γεννῶνται, εἴτε ὥσπερ ὁ πρῶτος εἰπὼν ἐξ ἀνίσων (ἰσασθέντων γὰρ ἐγένοντο) εἴτε ἄλλως—, ἐπεὶ εἰ ἔσται ἡ ἑτέρα μονὰς τῆς ἑτέρας προτέρα, καὶ τῆς δυάδος τῆς ἐκ τούτων ἔσται προτέρα· ὅταν γὰρ ᾖ τι τὸ μὲν πρότερον τὸ δὲ ὕστερον, καὶ τὸ ἐκ τούτων τοῦ μὲν ἔσται πρότερον τοῦ δ' ὕστερον.	For the dyad will not be the first thing to come from the One and the indefinite dyad, followed by the successive numbers, as they are called—dyad, triad, tetrad. For the units in the first dyad are generated at the same time, whether, as the first proponent of the theory said, from unequals (they came into being when these were equalized) or in some other way. Since if one unit is to be prior to the other, it will also be prior to the dyad made of them; for when one thing is prior and another posterior, what is made of them will be prior to the one and posterior to the other.
	ἔτι ἐπειδὴ ἔστι πρῶτον μὲν αὐτὸ τὸ ἕν, ἔπειτα τῶν ἄλλων ἔστι τι πρῶτον ἓν δεύτερον δὲ μετ' ἐκεῖνο, καὶ πάλιν τρίτον τὸ δεύτερον μὲν μετὰ τὸ δεύτερον τρίτον δὲ μετὰ τὸ πρῶτον ἕν,—ὥστε πρότεραι ἂν εἶεν αἱ μονάδες ἢ οἱ ἀριθμοὶ ἐξ ὧν λέγονται, οἷον ἐν τῇ δυάδι τρίτη μονὰς ἔσται πρὶν τὰ τρία εἶναι, καὶ ἐν τῇ τριάδι τετάρτη καὶ [ἡ] πέμπτη πρὶν τοὺς ἀριθμοὺς τούτους. οὐδεὶς μὲν οὖν τὸν τρόπον τοῦτον εἴρηκεν αὐτῶν τὰς μονάδας ἀσυμβλήτους, ἔστι δὲ κατὰ μὲν τὰς ἐκείνων ἀρχὰς εὔλογον καὶ οὕτως, κατὰ μέντοι τὴν ἀλήθειαν ἀδύνατον.	Further, since there is first the One itself, and then among the other ones there is a first one, and a second after that, and again a third, which is second after the second and third after the first one—the units would be prior to the numbers they are counted in: in the dyad, for instance, there will be a third unit before three exists, and in the triad a fourth and fifth before those numbers exist. No one, it's true, has said that the units are incomparable in this way; but on their principles this too is reasonable, though in truth it is impossible.
1081b	τάς τε γὰρ μονάδας προτέρας καὶ ὑστέρας εἶναι εὔλογον, εἴπερ καὶ πρώτη τις ἔστι μονὰς καὶ ἓν πρῶτον, ὁμοίως δὲ καὶ δυάδας, εἴπερ καὶ δυὰς πρώτη ἔστιν· μετὰ γὰρ τὸ	For it is reasonable that units should be prior and posterior if there is in fact a first unit, a first one; and likewise with dyads, if there is in fact a first

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πρῶτον εὔλογον καὶ ἀναγκαῖον δεύτερόν τι εἶναι, καὶ εἰ δεύτερον, τρίτον, καὶ οὕτω δὴ τὰ ἄλλα ἐφεξῆς (ἅμα δ' ἀμφότερα λέγειν, μονάδα τε μετὰ τὸ ἓν πρώτην εἶναι καὶ δευτέραν, καὶ δυάδα πρώτην, ἀδύνατον). οἱ δὲ ποιοῦσι μονάδα μὲν καὶ ἓν πρῶτον, δεύτερον δὲ καὶ τρίτον οὐκέτι, καὶ δυάδα πρώτην, δευτέραν δὲ καὶ τρίτην οὐκέτι. φανερὸν δὲ καὶ ὅτι οὐκ ἐνδέχεται, εἰ ἀσύμβλητοι πᾶσαι αἱ μονάδες, δυάδα εἶναι αὐτὴν καὶ τριάδα καὶ οὕτω τοὺς ἄλλους ἀριθμούς.

ἄν τε γὰρ ὦσιν ἀδιάφοροι αἱ μονάδες ἄν τε διαφέρουσαι ἑκάστη ἑκάστης, ἀνάγκη ἀριθμεῖσθαι τὸν ἀριθμὸν κατὰ πρόσθεσιν, οἷον τὴν δυάδα πρὸς τῷ ἑνὶ ἄλλου ἑνὸς προστεθέντος, καὶ τὴν τριάδα ἄλλου ἑνὸς πρὸς τοῖς δυσὶ προστεθέντος, καὶ τὴν τετράδα ὡσαύτως· τούτων δὲ ὄντων ἀδύνατον τὴν γένεσιν εἶναι τῶν ἀριθμῶν ὡς γεννῶσιν ἐκ τῆς δυάδος καὶ τοῦ ἑνός. μόριον γὰρ γίγνεται ἡ δυὰς τῆς τριάδος καὶ αὕτη τῆς τετράδος, τὸν αὐτὸν δὲ τρόπον συμβαίνει καὶ ἐπὶ τῶν ἐχομένων. ἀλλ' ἐκ τῆς δυάδος τῆς πρώτης καὶ τῆς ἀορίστου δυάδος ἐγίγνετο ἡ τετράς, δύο δυάδες παρ' αὐτὴν τὴν δυάδα· εἰ δὲ μή, μόριον ἔσται αὐτὴ ἡ δυάς, ἑτέρα δὲ προσέσται μία δυάς.

καὶ ἡ δυὰς ἔσται ἐκ τοῦ ἑνὸς αὐτοῦ καὶ ἄλλου ἑνός· εἰ δὲ τοῦτο, οὐχ οἷόν τ' εἶναι τὸ ἕτερον στοιχεῖον δυάδα ἀόριστον· μονάδα γὰρ μίαν γεννᾷ ἀλλ' οὐ δυάδα ὡρισμένην. ἔτι παρ' αὐτὴν τὴν τριάδα καὶ αὐτὴν τὴν δυάδα πῶς ἔσονται ἄλλαι τριάδες καὶ δυάδες; καὶ τίνα τρόπον ἐκ προτέρων μονάδων καὶ ὑστέρων σύγκεινται; πάντα γὰρ ταῦτ' ⟨ἄτοπά⟩ ἐστι καὶ πλασματώδη, καὶ ἀδύνατον εἶναι πρώτην δυάδα, εἶτ' αὐτὴν τριάδα. ἀνάγκη δ', ἐπείπερ ἔσται τὸ ἓν καὶ ἡ ἀόριστος δυὰς στοιχεῖα.

εἰ δ' ἀδύνατα τὰ συμβαίνοντα, καὶ τὰς ἀρχὰς εἶναι ταύτας ἀδύνατον.—εἰ μὲν οὖν διάφοροι αἱ μονάδες ὁποιαιοῦν ὁποιαισοῦν, ταῦτα καὶ τοιαῦθ' ἕτερα συμβαίνει ἐξ ἀνάγκης· εἰ δ' αἱ μὲν ἐν ἄλλῳ διάφοροι αἱ δ' ἐν τῷ αὐτῷ ἀριθμῷ ἀδιάφοροι ἀλλήλαις μόναι, καὶ οὕτως οὐθὲν ἐλάττω συμβαίνει τὰ δυσχερῆ. [1082a] οἷον γὰρ ἐν τῇ δεκάδι αὐτῇ ἔνεισι δέκα μονάδες, σύγκειται δὲ καὶ ἐκ τούτων καὶ ἐκ δύο πεντάδων ἡ δεκάς. ἐπεὶ δ' οὐχ ὁ τυχὼν ἀριθμὸς αὐτὴ ἡ δεκὰς οὐδὲ σύγκειται ἐκ τῶν τυχουσῶν πεντάδων, ὥσπερ οὐδὲ μονάδων, ἀνάγκη διαφέρειν τὰς μονάδας τὰς ἐν τῇ δεκάδι ταύτῃ. ἂν γὰρ μὴ διαφέρωσιν, οὐδ' αἱ πεντάδες διοίσουσιν ἐξ ὧν ἐστὶν ἡ δεκάς· ἐπεὶ δὲ διαφέρουσι, καὶ αἱ μονάδες διοίσουσιν.

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dyad. For after the first it is reasonable and necessary that there be a second, and if a second, a third, and so on in order. (But to say both at once—that there is a first and a second unit after the One, and also a first dyad—is impossible.) Yet they make a first unit and one, but no second and third; and a first dyad, but no second and third. It is also clear that if all the units are incomparable, there cannot be a dyad-itself and a triad-itself, and so on with the other numbers.

For whether the units are undifferentiated or each differs from each, number must be counted by addition: the dyad, for instance, by adding another one to the one, the triad by adding another one to the two, and the tetrad in the same way. And if this is so, numbers cannot be generated in the way they generate them, from the dyad and the One. For the dyad becomes a part of the triad, and the triad of the tetrad, and the same happens with the numbers that follow. But on their view the tetrad came from the first dyad and the indefinite dyad—two dyads besides the dyad-itself. Otherwise the dyad-itself will be a part of it, and one other dyad will be added.

And the dyad will consist of the One itself and another one; but if so, the other element cannot be an indefinite dyad, for it generates a single unit, not a definite dyad. Further, how will there be other triads and dyads besides the triad-itself and the dyad-itself? And in what way are they composed of prior and posterior units? All this is absurd and fictitious, and there cannot be a first dyad and then a triad-itself. Yet there must be, since the One and the indefinite dyad are to be elements.

But if the consequences are impossible, it is impossible for these to be the principles.—If, then, any units whatever differ from any others, these and other such consequences follow necessarily. And if those in different numbers differ, while those in the same number are undifferentiated only from one another, even so the difficulties that follow are no fewer. [1082a] In the decad-itself, for instance, there are ten units, and the decad is composed both of these and of two pentads. But since the decad-itself is not just any number, and is not composed of just any pentads—any more than of just any units—the units in this decad must differ. For if they did not differ, neither would the

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pentads that make up the decad; but since these differ, the units will differ too.

1082a εἰ δὲ διαφέρουσι, πότερον οὐκ ἐνέσονται πεντάδες ἄλλαι ἀλλὰ μόνον αὗται αἱ δύο, ἢ ἔσονται; εἴτε δὲ μὴ ἐνέσονται, ἄτοπον· εἴτ' ἐνέσονται, ποία ἔσται δεκὰς ἐξ ἐκείνων; οὐ γὰρ ἔστιν ἑτέρα δεκὰς ἐν τῇ δεκάδι παρ' αὐτήν. ἀλλὰ μὴν καὶ ἀνάγκη γε μὴ ἐκ τῶν τυχουσῶν δυάδων τὴν τετράδα συγκεῖσθαι· ἡ γὰρ ἀόριστος δυάς, ὥς φασι, λαβοῦσα τὴν ὡρισμένην δυάδα δύο δυάδας ἐποίησεν· τοῦ γὰρ ληφθέντος ἦν δυοποιός.—ἔτι τὸ εἶναι παρὰ τὰς δύο μονάδας τὴν δυάδα φύσιν τινά, καὶ τὴν τριάδα παρὰ τὰς τρεῖς μονάδας, πῶς ἐνδέχεται; ἢ γὰρ μεθέξει θατέρου θατέρου, ὥσπερ λευκὸς ἄνθρωπος παρὰ λευκὸν καὶ ἄνθρωπον (μετέχει γὰρ τούτων), ἢ ὅταν ᾖ θατέρου θάτερον διαφορά τις, ὥσπερ ὁ ἄνθρωπος παρὰ ζῷον καὶ δίπουν.

But if they differ, will no other pentads be present in the decad, only these two, or will there be others? If not, that is absurd; if there will be, what sort of decad will be made of them? For there is no other decad in the decad besides itself. Moreover, the tetrad too must not be composed of just any dyads. For the indefinite dyad, they say, took the definite dyad and made two dyads, since it was a doubler of whatever it took.—Further, how can the dyad be some nature besides its two units, and the triad besides its three units? Either one will participate in the other, as "pale human being" is something besides pale and human being (since it participates in these), or one will be a differentia of the other, as human being is something besides animal and two-footed.

ἔτι τὰ μὲν ἁφῇ ἐστὶν ἓν τὰ δὲ μίξει τὰ δὲ θέσει· ὧν οὐδὲν ἐνδέχεται ὑπάρχειν ταῖς μονάσιν ἐξ ὧν ἡ δυὰς καὶ ἡ τριάς· ἀλλ' ὥσπερ οἱ δύο ἄνθρωποι οὐχ ἕν τι παρ' ἀμφοτέρους, οὕτως ἀνάγκη καὶ τὰς μονάδας. καὶ οὐχ ὅτι ἀδιαίρετοι, διοίσουσι διὰ τοῦτο· καὶ γὰρ αἱ στιγμαὶ ἀδιαίρετοι, ἀλλ' ὅμως παρὰ τὰς δύο οὐθὲν ἕτερον ἡ δυὰς αὐτῶν.—ἀλλὰ μὴν οὐδὲ τοῦτο δεῖ λανθάνειν, ὅτι συμβαίνει προτέρας καὶ ὑστέρας εἶναι δυάδας, ὁμοίως δὲ καὶ τοὺς ἄλλους ἀριθμούς. αἱ μὲν γὰρ ἐν τῇ τετράδι δυάδες ἔστωσαν ἀλλήλαις ἅμα· ἀλλ' αὗται τῶν ἐν τῇ ὀκτάδι πρότεραί εἰσι, καὶ ἐγέννησαν, ὥσπερ ἡ δυὰς ταύτας, αὗται τὰς τετράδας τὰς ἐν τῇ ὀκτάδι αὐτῇ, ὥστε εἰ καὶ ἡ πρώτη δυὰς ἰδέα, καὶ αὗται ἰδέαι τινὲς ἔσονται.

Further, some things are one by contact, some by mixture, some by position; none of these can belong to the units of which the dyad and triad consist. Just as two human beings are not some one thing besides the two of them, so it must be with the units. Nor will the units differ because they are indivisible: points are indivisible too, yet the pair of them is nothing besides the two.—Nor should we overlook this point: it follows that there are prior and posterior dyads, and likewise with the other numbers. Let the dyads in the tetrad be simultaneous with each other; still, they are prior to those in the octad, and just as the dyad generated them, they generated the tetrads in the octad-itself. So if the first dyad is a Form, these too will be Forms of a sort.

ὁ δ' αὐτὸς λόγος καὶ ἐπὶ τῶν μονάδων· αἱ γὰρ ἐν τῇ δυάδι τῇ πρώτῃ μονάδες γεννῶσι τὰς τέτταρας τὰς ἐν τῇ τετράδι, ὥστε πᾶσαι αἱ μονάδες ἰδέαι γίγνονται καὶ συγκείσεται ἰδέα ἐξ ἰδεῶν· ὥστε δῆλον ὅτι κἀκεῖνα ὧν ἰδέαι αὗται τυγχάνουσιν οὖσαι συγκείμενα ἔσται, οἷον εἰ τὰ ζῷα φαίη τις συγκεῖσθαι ἐκ ζῴων, εἰ τούτων ἰδέαι εἰσίν. 1082b —ὅλως δὲ τὸ ποιεῖν τὰς μονάδας διαφόρους ὁπωσοῦν ἄτοπον καὶ πλασματῶδες (λέγω δὲ πλασματῶδες τὸ πρὸς ὑπόθεσιν βεβιασμένον)· οὔτε γὰρ κατὰ τὸ ποσὸν οὔτε κατὰ τὸ ποιὸν ὁρῶμεν διαφέρουσαν μονάδα μονάδος, ἀνάγκη τε ἢ ἴσον ἢ ἄνισον εἶναι ἀριθμόν, πάντα μὲν ἀλλὰ μάλιστα τὸν μοναδικόν, ὥστ' εἰ μήτε πλείων μήτ' ἐλάττων, ἴσος· τὰ δὲ ἴσα καὶ ὅλως ἀδιάφορα ταὐτὰ ὑπολαμβάνομεν ἐν τοῖς ἀριθμοῖς.

The same argument applies to the units. The units in the first dyad generate the four in the tetrad, so that all the units become Forms, and a Form will be composed of Forms. So clearly the things of which these happen to be Forms will be composite too—as if one were to say that animals are composed of animals, if there are Forms of them. 1082b In general, to make the units different in any way whatever is absurd and fictitious (by "fictitious" I mean forced to fit a hypothesis). For we see no unit differing from another either in quantity or in quality; and a number must be either equal or unequal—every number, but especially one made of abstract units—so that if it is neither greater nor smaller, it is equal. And things that are equal and

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		wholly undifferentiated we take to be the same, in the case of numbers.
1082b	εἰ δὲ μή, οὐδ' αἱ ἐν αὐτῇ τῇ δεκάδι δυάδες ἀδιάφοροι ἔσονται ἴσαι οὖσαι· τίνα γὰρ αἰτίαν ἕξει λέγειν ὁ φάσκων ἀδιαφόρους εἶναι; ἔτι εἰ ἅπασα μονὰς καὶ μονὰς ἄλλη δύο, ἡ ἐκ τῆς δυάδος αὐτῆς μονὰς καὶ ἡ ἐκ τῆς τριάδος αὐτῆς δυὰς ἔσται ἐκ διαφερουσῶν τε, καὶ πότερον προτέρα τῆς τριάδος ἢ ὑστέρα; μᾶλλον γὰρ ἔοικε προτέραν ἀναγκαῖον εἶναι· ἡ μὲν γὰρ ἅμα τῇ τριάδι ἡ δ' ἅμα τῇ δυάδι τῶν μονάδων. καὶ ἡμεῖς μὲν ὑπολαμβάνομεν ὅλως ἓν καὶ ἕν, καὶ ἐὰν ᾖ ἴσα ἢ ἄνισα, δύο εἶναι, οἷον τὸ ἀγαθὸν καὶ τὸ κακόν, καὶ ἄνθρωπον καὶ ἵππον· οἱ δ' οὕτως λέγοντες οὐδὲ τὰς μονάδας.	If not, then not even the dyads in the decad-itself will be undifferentiated, though they are equal. For what reason will anyone who says they are undifferentiated be able to give? Further, if every unit together with another unit makes two, a unit from the dyad-itself together with one from the triad-itself will make a dyad—a dyad of differing units. And will it be prior to the triad or posterior? It rather seems that it must be prior, since one of its units is simultaneous with the triad and the other with the dyad. We suppose that in general one and one make two, whether the things are equal or unequal—good and bad, for instance, or a human being and a horse; but those who talk this way say that not even two units do.
	εἴτε δὲ μὴ ἔστι πλείων ἀριθμὸς ὁ τῆς τριάδος αὐτῆς ἢ ὁ τῆς δυάδος, θαυμαστόν· εἴτε ἐστὶ πλείων, δῆλον ὅτι καὶ ἴσος ἔνεστι τῇ δυάδι, ὥστε οὗτος ἀδιάφορος αὐτῇ τῇ δυάδι. ἀλλ' οὐκ ἐνδέχεται, εἰ πρῶτός τις ἔστιν ἀριθμὸς καὶ δεύτερος. οὐδὲ ἔσονται αἱ ἰδέαι ἀριθμοί. τοῦτο μὲν γὰρ αὐτὸ ὀρθῶς λέγουσιν οἱ διαφόρους τὰς μονάδας ἀξιοῦντες εἶναι, εἴπερ ἰδέαι ἔσονται, ὥσπερ εἴρηται πρότερον· ἓν γὰρ τὸ εἶδος, αἱ δὲ μονάδες εἰ ἀδιάφοροι, καὶ αἱ δυάδες καὶ αἱ τριάδες ἔσονται ἀδιάφοροι.	If the number of the triad-itself is not greater than that of the dyad, that is surprising; if it is greater, clearly there is also a number in it equal to the dyad, so that this number is undifferentiated from the dyad-itself. But that cannot be, if there is a first number and a second. Nor will the Forms be numbers. On this very point those who insist that the units are different are right, if there are to be Forms, as was said earlier. For the Form is one; but if the units are undifferentiated, the dyads and the triads will be undifferentiated too.
	διὸ καὶ τὸ ἀριθμεῖσθαι οὕτως, ἓν δύο, μὴ προσλαμβανομένου πρὸς τῷ ὑπάρχοντι ἀναγκαῖον αὐτοῖς λέγειν (οὔτε γὰρ ἡ γένεσις ἔσται ἐκ τῆς ἀορίστου δυάδος, οὔτ' ἰδέαν ἐνδέχεται εἶναι· ἐνυπάρξει γὰρ ἑτέρα ἰδέα ἐν ἑτέρᾳ, καὶ πάντα τὰ εἴδη ἑνὸς μέρη)· διὸ πρὸς μὲν τὴν ὑπόθεσιν ὀρθῶς λέγουσιν, ὅλως δ' οὐκ ὀρθῶς· πολλὰ γὰρ ἀναιροῦσιν, ἐπεὶ τοῦτό γ' αὐτὸ ἔχειν τινὰ φήσουσιν ἀπορίαν, πότερον, ὅταν ἀριθμῶμεν καὶ εἴπωμεν ἓν δύο τρία, προσλαμβάνοντες ἀριθμοῦμεν ἢ κατὰ μερίδας. ποιοῦμεν δὲ ἀμφοτέρως· διὸ γελοῖον ταύτην εἰς τηλικαύτην τῆς οὐσίας ἀνάγειν διαφοράν.	That is why they have to say that when we count "one, two," we do not proceed by adding to what is already there. (Otherwise the generation will not come from the indefinite dyad, and a number cannot be a Form: one Form will be present in another, and all the Forms will be parts of one.) So relative to their hypothesis they speak correctly, but not correctly overall, for they do away with a great deal. They will say that this very question poses a puzzle: when we count and say "one, two, three," do we count by adding, or by taking separate portions? But we do both. So it is ridiculous to trace this back to so great a difference in substance.

FURTHER OBJECTIONS TO SEPARATE NUMBER

Units cannot differ in quantity or quality, and neither Platonist nor Pythagorean number works.

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1083a	πάντων δὲ πρῶτον καλῶς ἔχει διορίσασθαι τίς ἀριθμοῦ διαφορά, καὶ μονάδος, εἰ ἔστιν. ἀνάγκη δ' ἢ κατὰ τὸ	First of all, it is well to determine what the differentia of a number is—and of a unit, if it has one.

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ποσὸν ἢ κατὰ τὸ ποιὸν διαφέρειν· τούτων δ' οὐδέτερον φαίνεται ἐνδέχεσθαι ὑπάρχειν. ἀλλ' ᾗ ἀριθμός, κατὰ τὸ ποσόν. εἰ δὲ δὴ καὶ αἱ μονάδες τῷ ποσῷ διέφερον, κἂν ἀριθμὸς ἀριθμοῦ διέφερεν ὁ ἴσος τῷ πλήθει τῶν μονάδων. ἔτι πότερον αἱ πρῶται μείζους ἢ ἐλάττους, καὶ αἱ ὕστερον ἐπιδιδόασιν ἢ τοὐναντίον; πάντα γὰρ ταῦτα ἄλογα. ἀλλὰ μὴν οὐδὲ κατὰ τὸ ποιὸν διαφέρειν ἐνδέχεται. οὐθὲν γὰρ αὐταῖς οἷόν τε ὑπάρχειν πάθος· ὕστερον γὰρ καὶ τοῖς ἀριθμοῖς φασὶν ὑπάρχειν τὸ ποιὸν τοῦ ποσοῦ.

ἔτι οὔτ' ἂν ἀπὸ τοῦ ἑνὸς τοῦτ' αὐταῖς γένοιτο οὔτ' ἂν ἀπὸ τῆς δυάδος· τὸ μὲν γὰρ οὐ ποιὸν ἡ δὲ ποσοποιόν· τοῦ γὰρ πολλὰ τὰ ὄντα εἶναι αἰτία αὕτη ἡ φύσις. εἰ δ' ἄρα ἔχει πως ἄλλως, λεκτέον ἐν ἀρχῇ μάλιστα τοῦτο καὶ διοριστέον περὶ μονάδος διαφορᾶς, μάλιστα μὲν καὶ διότι ἀνάγκη ὑπάρχειν· εἰ δὲ μή, τίνα λέγουσιν;—ὅτι μὲν οὖν, εἴπερ εἰσὶν ἀριθμοὶ αἱ ἰδέαι, οὔτε συμβλητὰς τὰς μονάδας ἁπάσας ἐνδέχεται εἶναι, φανερόν, οὔτε ἀσυμβλήτους ἀλλήλαις οὐδέτερον τῶν τρόπων· ἀλλὰ μὴν οὐδ' ὡς ἕτεροί τινες λέγουσι περὶ τῶν ἀριθμῶν λέγεται καλῶς. εἰσὶ δ' οὗτοι ὅσοι ἰδέας μὲν οὐκ οἴονται εἶναι οὔτε ἁπλῶς οὔτε ὡς ἀριθμούς τινας οὔσας, τὰ δὲ μαθηματικὰ εἶναι καὶ τοὺς ἀριθμοὺς πρώτους τῶν ὄντων, καὶ ἀρχὴν αὐτῶν εἶναι αὐτὸ τὸ ἕν.

ἄτοπον γὰρ τὸ ἓν μὲν εἶναί τι πρῶτον τῶν ἑνῶν, ὥσπερ ἐκεῖνοί φασι, δυάδα δὲ τῶν δυάδων μή, μηδὲ τριάδα τῶν τριάδων· τοῦ γὰρ αὐτοῦ λόγου πάντα ἐστίν. εἰ μὲν οὖν οὕτως ἔχει τὰ περὶ τὸν ἀριθμὸν καὶ θήσει τις εἶναι τὸν μαθηματικὸν μόνον, οὐκ ἔστι τὸ ἓν ἀρχή (ἀνάγκη γὰρ διαφέρειν τὸ ἓν τὸ τοιοῦτο τῶν ἄλλων μονάδων· εἰ δὲ τοῦτο, καὶ δυάδα τινὰ πρώτην τῶν δυάδων, ὁμοίως δὲ καὶ τοὺς ἄλλους ἀριθμοὺς τοὺς ἐφεξῆς)· εἰ δέ ἐστι τὸ ἓν ἀρχή, ἀνάγκη μᾶλλον ὥσπερ Πλάτων ἔλεγεν ἔχειν τὰ περὶ τοὺς ἀριθμούς, καὶ εἶναι δυάδα πρώτην καὶ τριάδα, καὶ οὐ συμβλητοὺς εἶναι τοὺς ἀριθμοὺς πρὸς ἀλλήλους. ἂν δ' αὖ πάλιν τις τιθῇ ταῦτα, εἴρηται ὅτι ἀδύνατα πολλὰ συμβαίνει.

ἀλλὰ μὴν ἀνάγκη γε ἢ οὕτως ἢ ἐκείνως ἔχειν, ὥστ' εἰ μηδετέρως, οὐκ ἂν ἐνδέχοιτο εἶναι τὸν ἀριθμὸν χωριστόν. [1083b] —φανερὸν δ' ἐκ τούτων καὶ ὅτι χείριστα λέγεται ὁ τρίτος τρόπος, τὸ εἶναι τὸν αὐτὸν ἀριθμὸν τὸν τῶν εἰδῶν καὶ τὸν μαθηματικόν. ἀνάγκη γὰρ εἰς μίαν δόξαν

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Units must differ either in quantity or in quality, and neither seems possible. As number, they would differ in quantity. But if the units too differed in quantity, one number would differ from another even when equal to it in number of units. Further, are the first units larger or smaller, and do the later ones increase, or the reverse? All this is unreasonable. Nor can they differ in quality, since no attribute can belong to them; they themselves say that quality belongs even to numbers only after quantity.

Further, this quality could come to the units neither from the One nor from the dyad: the One is not a quality, and the dyad produces quantity, since this nature is the cause of the things that are being many. If things are somehow otherwise, they should say so right at the start and determine about the differentia of the unit—above all, why it must exist; and failing that, what differentia they mean.—It is clear, then, that if the Forms are numbers, the units can neither all be comparable nor be incomparable with one another in either of the two ways. But neither is the way certain others speak about numbers correct. These are the people who do not think there are Forms, either simply or as certain numbers, but think that mathematical objects exist and that numbers are the first of the things that are, and that their principle is the One itself.

For it is absurd that there should be a one that is first among ones, as they say, but not a dyad first among dyads, or a triad among triads; for the same account applies to them all. If, then, this is how things stand with number, and someone posits only mathematical number, the One is not a principle. (For a one of this kind must differ from the other units; and if so, there must also be some first dyad among the dyads, and likewise with the other successive numbers.) But if the One is a principle, things must rather be with numbers as Plato said: there must be a first dyad and triad, and the numbers must be incomparable with one another. But if someone in turn posits this, it has been said that many impossible consequences follow.

Yet it must be one way or the other; so that if it is neither, number cannot be separate. [1083b] It is clear from this, too, that the third way is the worst—that the number of the Forms and mathematical number are the same. For two errors must converge in

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συμβαίνειν δύο ἁμαρτίας· οὔτε γὰρ μαθηματικὸν ἀριθμὸν ἐνδέχεται τοῦτον εἶναι τὸν τρόπον, ἀλλ' ἰδίας ὑποθέσεις ὑποθέμενον ἀνάγκη μηκύνειν, ὅσα τε τοῖς ὡς εἴδη τὸν ἀριθμὸν λέγουσι συμβαίνει, καὶ ταῦτα ἀναγκαῖον λέγειν. —ὁ δὲ τῶν Πυθαγορείων τρόπος τῇ μὲν ἐλάττους ἔχει δυσχερείας τῶν πρότερον εἰρημένων, τῇ δὲ ἰδίας ἑτέρας. τὸ μὲν γὰρ μὴ χωριστὸν ποιεῖν τὸν ἀριθμὸν ἀφαιρεῖται πολλὰ τῶν ἀδυνάτων· τὸ δὲ τὰ σώματα ἐξ ἀριθμῶν εἶναι συγκείμενα, καὶ τὸν ἀριθμὸν τοῦτον εἶναι μαθηματικόν, ἀδύνατόν ἐστιν.

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one opinion. Mathematical number cannot exist in this way; whoever holds it has to spin things out by making special hypotheses of his own. And he also has to accept all the consequences that follow for those who speak of number as Forms.—The Pythagorean way has in one respect fewer difficulties than those mentioned before, but in another respect difficulties of its own. Not making number separate removes many of the impossibilities; but that bodies should be composed of numbers, and that this number should be mathematical, is impossible.

1083b οὔτε γὰρ ἄτομα μεγέθη λέγειν ἀληθές, εἴ θ' ὅτι μάλιστα τοῦτον ἔχει τὸν τρόπον, οὐχ αἵ γε μονάδες μέγεθος ἔχουσιν· μέγεθος δὲ ἐξ ἀδιαιρέτων συγκεῖσθαι πῶς δυνατόν; ἀλλὰ μὴν ὅ γ' ἀριθμητικὸς ἀριθμὸς μοναδικός ἐστιν. ἐκεῖνοι δὲ τὸν ἀριθμὸν τὰ ὄντα λέγουσιν· τὰ γοῦν θεωρήματα προσάπτουσι τοῖς σώμασιν ὡς ἐξ ἐκείνων ὄντων τῶν ἀριθμῶν.—εἰ τοίνυν ἀνάγκη μέν, εἴπερ ἐστὶν ἀριθμὸς τῶν ὄντων τι καθ' αὑτό, τούτων εἶναί τινα τῶν εἰρημένων τρόπων, οὐθένα δὲ τούτων ἐνδέχεται, φανερὸν ὡς οὐκ ἔστιν ἀριθμοῦ τις τοιαύτη φύσις οἵαν κατασκευάζουσιν οἱ χωριστὸν ποιοῦντες αὐτόν.—ἔτι πότερον ἑκάστη μονὰς ἐκ τοῦ μεγάλου καὶ μικροῦ ἰσασθέντων ἐστίν, ἢ ἡ μὲν ἐκ τοῦ μικροῦ ἡ δ' ἐκ τοῦ μεγάλου;

For it is not true to speak of indivisible magnitudes; and even if it were entirely so, units at least have no magnitude. And how can a magnitude be composed of indivisibles? But arithmetical number, at any rate, consists of abstract units. Yet they say that the things that are are number; at any rate they apply their theorems to bodies as though bodies consisted of those numbers.—If, then, number, if it is something that is in its own right, must exist in one of the ways described, and it cannot exist in any of these, clearly number has no such nature as those who make it separate construct for it.—Further, does each unit come from the great and the small equalized, or one from the small and another from the great?

εἰ μὲν δὴ οὕτως, οὔτε ἐκ πάντων τῶν στοιχείων ἕκαστον οὔτε ἀδιάφοροι αἱ μονάδες (ἐν τῇ μὲν γὰρ τὸ μέγα ἐν τῇ δὲ τὸ μικρὸν ὑπάρχει, ἐναντίον τῇ φύσει ὄν)· ἔτι αἱ ἐν τῇ τριάδι αὐτῇ πῶς; μία γὰρ περιττή· ἀλλὰ διὰ τοῦτο ἴσως αὐτὸ τὸ ἓν ποιοῦσιν ἐν τῷ περιττῷ μέσον. εἰ δ' ἑκατέρα τῶν μονάδων ἐξ ἀμφοτέρων ἐστὶν ἰσασθέντων, ἡ δυὰς πῶς ἔσται μία τις οὖσα φύσις ἐκ τοῦ μεγάλου καὶ μικροῦ; ἢ τί διοίσει τῆς μονάδος; ἔτι προτέρα ἡ μονὰς τῆς δυάδος (ἀναιρουμένης γὰρ ἀναιρεῖται ἡ δυάς)· ἰδέαν οὖν ἰδέας ἀναγκαῖον αὐτὴν εἶναι, προτέραν γ' οὖσαν ἰδέας, καὶ γεγονέναι προτέραν. ἐκ τίνος οὖν;

If the latter, each unit does not come from all the elements, nor are the units undifferentiated (for in one the great is present and in the other the small, which is contrary to it by nature). Further, what about the units in the triad-itself? One of them is odd. But perhaps this is why they make the One itself the middle unit in the odd number. If each of the units comes from both, equalized, how will the dyad, being a single nature, come from the great and the small? Or how will it differ from the unit? Further, the unit is prior to the dyad (since when it is removed the dyad is removed); so it must be a Form of a Form, since it is prior to a Form, and it must have come into being first. From what, then?

ἡ γὰρ ἀόριστος δυὰς δυοποιὸς ἦν.—ἔτι ἀνάγκη ἤτοι ἄπειρον τὸν ἀριθμὸν εἶναι ἢ πεπερασμένον· χωριστὸν γὰρ ποιοῦσι τὸν ἀριθμόν, ὥστε οὐχ οἷόν τε μὴ οὐχὶ τούτων θάτερον ὑπάρχειν. 1084a ὅτι μὲν τοίνυν ἄπειρον οὐκ ἐνδέχεται, δῆλον (οὔτε γὰρ περιττὸς ὁ ἄπειρός ἐστιν οὔτ' ἄρτιος, ἡ δὲ γένεσις τῶν ἀριθμῶν ἢ περιττοῦ ἀριθμοῦ ἢ ἀρτίου ἀεί ἐστιν· ὠδὶ μὲν τοῦ ἑνὸς εἰς τὸν ἄρτιον

For the indefinite dyad was a doubler.—Further, number must be either infinite or finite; for they make number separate, so it cannot be that neither of these holds. 1084a That it cannot be infinite is clear. (For infinite number is neither odd nor even, while the generation of numbers is always of an odd or an even number: in one way, when the

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πίπτοντος περιττός, ὠδὶ δὲ τῆς μὲν δυάδος ἐμπιπτούσης ὁ ἀφ' ἑνὸς διπλασιαζόμενος, ὠδὶ δὲ τῶν περιττῶν ὁ ἄλλος ἄρτιος· ἔτι εἰ πᾶσα ἰδέα τινὸς οἱ δὲ ἀριθμοὶ ἰδέαι, καὶ ὁ ἄπειρος ἔσται ἰδέα τινός, ἢ τῶν αἰσθητῶν ἢ ἄλλου τινός· καίτοι οὔτε κατὰ τὴν θέσιν ἐνδέχεται οὔτε κατὰ λόγον, τάττουσί γ' οὕτω τὰς ἰδέας)· εἰ δὲ πεπερασμένος, μέχρι πόσου;	One falls on the even, an odd number results; in another, when the dyad falls on it, the numbers doubled from one; in another, when the odd numbers do, the other even numbers. Further, if every Form is a Form of something, and the numbers are Forms, infinite number too will be a Form of something, either of perceptible things or of something else. Yet that is not possible either on their own thesis or by reason—at least as they arrange the Forms.) But if number is finite, up to what limit?
1084a τοῦτο γὰρ δεῖ λέγεσθαι οὐ μόνον ὅτι ἀλλὰ καὶ διότι. ἀλλὰ μὴν εἰ μέχρι τῆς δεκάδος ὁ ἀριθμός, ὥσπερ τινές φασιν, πρῶτον μὲν ταχὺ ἐπιλείψει τὰ εἴδη—οἷον εἰ ἔστιν ἡ τριὰς αὐτοάνθρωπος, τίς ἔσται ἀριθμὸς αὐτόιππος; αὐτὸ γὰρ ἕκαστος ἀριθμὸς μέχρι δεκάδος· ἀνάγκη δὴ τῶν ἐν τούτοις ἀριθμῶν τινὰ εἶναι (οὐσίαι γὰρ καὶ ἰδέαι οὗτοι)· ἀλλ' ὅμως ἐπιλείψει (τὰ τοῦ ζῴου γὰρ εἴδη ὑπερέξει)—. ἅμα δὲ δῆλον ὅτι εἰ οὕτως ἡ τριὰς αὐτοάνθρωπος, καὶ αἱ ἄλλαι τριάδες (ὅμοιαι γὰρ αἱ ἐν τοῖς αὐτοῖς ἀριθμοῖς), ὥστ' ἄπειροι ἔσονται ἄνθρωποι, εἰ μὲν ἰδέα ἑκάστη τριάς, αὐτὸ ἕκαστος ἄνθρωπος, εἰ δὲ μή, ἀλλ' ἄνθρωποί γε.	For one must state not only that it is so but why. But if number goes up to the decad, as some say, first of all the Forms will quickly run out. If the triad is human-being-itself, for instance, what number will horse-itself be? Each number up to the decad is an "itself"; so horse-itself must be one of the numbers in this range, since these are the substances and Forms. But still they will run out, for the species of animal will outnumber them. At the same time, it is clear that if the triad is human-being-itself in this way, so will the other triads be (for those in the same numbers are similar), so that there will be infinitely many human beings: each triad a human-being-itself, if each is a Form, and if not, still human beings.
καὶ εἰ μέρος ὁ ἐλάττων τοῦ μείζονος, ὁ ἐκ τῶν συμβλητῶν μονάδων τῶν ἐν τῷ αὐτῷ ἀριθμῷ, εἰ δὴ ἡ τετρὰς αὐτὴ ἰδέα τινός ἐστιν, οἷον ἵππου ἢ λευκοῦ, ὁ ἄνθρωπος ἔσται μέρος ἵππου, εἰ δυὰς ὁ ἄνθρωπος. ἄτοπον δὲ καὶ τὸ τῆς μὲν δεκάδος εἶναι ἰδέαν ἑνδεκάδος δὲ μή, μηδὲ τῶν ἐχομένων ἀριθμῶν. ἔτι δὲ καὶ ἔστι καὶ γίγνεται ἕνια καὶ ὧν εἴδη οὐκ ἔστιν, ὥστε διὰ τί οὐ κἀκείνων εἴδη ἔστιν; οὐκ ἄρα αἴτια τὰ εἴδη ἐστίν. ἔτι ἄτοπον εἰ ὁ ἀριθμὸς ὁ μέχρι τῆς δεκάδος μᾶλλόν τι ὂν καὶ εἶδος αὐτῆς τῆς δεκάδος, καίτοι τοῦ μὲν οὐκ ἔστι γένεσις ὡς ἑνός, τῆς δ' ἔστιν. πειρῶνται δ' ὡς τοῦ μέχρι τῆς δεκάδος τελείου ὄντος ἀριθμοῦ.	And if the smaller number is a part of the greater—number made of comparable units within the same number—then if the tetrad-itself is the Form of something, of horse or of white, say, human being will be part of horse, if human being is the dyad. It is also absurd that there should be a Form of the decad but not of the number eleven, nor of the numbers after it. Further, some things both exist and come to be of which there are no Forms; so why are there not Forms of those too? The Forms, then, are not causes. Further, it is absurd if number up to the decad is more of a being, and more a Form, than the decad itself—though there is no generation of the former as a unity, and there is of the latter. But they try to treat number up to the decad as complete.
γεννῶσι γοῦν τὰ ἑπόμενα, οἷον τὸ κενόν, ἀναλογίαν, τὸ περιττόν, τὰ ἄλλα τὰ τοιαῦτα, ἐντὸς τῆς δεκάδος· τὰ μὲν γὰρ ταῖς ἀρχαῖς ἀποδιδόασιν, οἷον κίνησιν στάσιν, ἀγαθὸν κακόν, τὰ δ' ἄλλα τοῖς ἀριθμοῖς· διὸ τὸ ἓν τὸ περιττόν· εἰ γὰρ ἐν τῇ τριάδι, πῶς ἡ πεντὰς περιττόν; ἔτι τὰ μεγέθη καὶ ὅσα τοιαῦτα μέχρι ποσοῦ, 1084b οἷον ἡ πρώτη γραμμή, ⟨ἡ⟩ ἄτομος, εἶτα δυάς, εἶτα καὶ ταῦτα μέχρι δεκάδος.—ἔτι εἰ	At any rate they generate the derivatives—the void, proportion, the odd, and other such things—within the decad. Some they assign to the principles, such as motion and rest, good and bad, and the rest to the numbers. That is why the One is the odd: for if the odd were in the triad, how would the pentad be odd? Further, magnitudes and all

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ἔστι χωριστὸς ὁ ἀριθμός, ἀπορήσειεν ἄν τις πότερον πρότερον τὸ ἓν ἢ ἡ τριὰς καὶ ἡ δυάς. ᾗ μὲν δὴ σύνθετος ὁ ἀριθμός, τὸ ἕν, ᾗ δὲ τὸ καθόλου πρότερον καὶ τὸ εἶδος, ὁ ἀριθμός· ἑκάστη γὰρ τῶν μονάδων μόριον τοῦ ἀριθμοῦ ὡς ὕλη, ὁ δ' ὡς εἶδος.

such things go up only to a certain amount: 1084b first the indivisible line, for instance, then the dyad, and then these too up to the decad.—Further, if number is separate, one might be puzzled whether the One is prior, or the triad and the dyad. Insofar as number is composite, the One is prior; but insofar as the universal and the form are prior, number is. For each of the units is part of the number as its matter, while the number is its form.

1084b καὶ ἔστι μὲν ὡς ἡ ὀρθὴ πρότερα τῆς ὀξείας, ὅτι ὥρισται καὶ τῷ λόγῳ· ἔστι δ' ὡς ἡ ὀξεῖα, ὅτι μέρος καὶ εἰς ταύτην διαιρεῖται. ὡς μὲν δὴ ὕλη ἡ ὀξεῖα καὶ τὸ στοιχεῖον καὶ ἡ μονὰς πρότερον, ὡς δὲ κατὰ τὸ εἶδος καὶ τὴν οὐσίαν τὴν κατὰ τὸν λόγον ἡ ὀρθὴ καὶ τὸ ὅλον τὸ ἐκ τῆς ὕλης καὶ τοῦ εἴδους· ἐγγύτερον γὰρ τοῦ εἴδους καὶ οὗ ὁ λόγος τὸ ἄμφω, γενέσει δ' ὕστερον. πῶς οὖν ἀρχὴ τὸ ἕν; ὅτι οὐ διαιρετόν, φασίν· ἀλλ' ἀδιαίρετον καὶ τὸ καθόλου καὶ τὸ ἐπὶ μέρους καὶ τὸ στοιχεῖον. ἀλλὰ τρόπον ἄλλον, τὸ μὲν κατὰ λόγον τὸ δὲ κατὰ χρόνον. ποτέρως οὖν τὸ ἓν ἀρχή;

In one way the right angle is prior to the acute, because it is determinate, and by its definition; in another way the acute is prior, because it is a part, and the right angle is divided into acute ones. As matter, then, the acute angle, the element, and the unit are prior; but with respect to form, and substance in the sense of the definition, the right angle is prior, and the whole made of matter and form. For the two together are nearer to the form and to what the definition is of, though in generation they come later. How, then, is the One a principle? Because it is not divisible, they say. But the universal is indivisible too, and so are the particular and the element—though in different ways, one in definition, the other in time. In which way, then, is the One a principle?

ὥσπερ γὰρ εἴρηται, καὶ ἡ ὀρθὴ τῆς ὀξείας καὶ αὕτη ἐκείνης δοκεῖ προτέρα εἶναι, καὶ ἑκατέρα μία. ἀμφοτέρως δὴ ποιοῦσι τὸ ἓν ἀρχήν. ἔστι δὲ ἀδύνατον· τὸ μὲν γὰρ ὡς εἶδος καὶ ἡ οὐσία τὸ δ' ὡς μέρος καὶ ὡς ὕλη.

For, as was said, the right angle seems to be prior to the acute, and the acute to the right, and each of them is one. So they make the One a principle in both ways. But that is impossible: one is so as form and substance, the other as part and as matter.

ἔστι γάρ πως ἓν ἑκάτερον—τῇ μὲν ἀληθείᾳ δυνάμει (εἴ γε ὁ ἀριθμὸς ἕν τι καὶ μὴ ὡς σωρὸς ἀλλ' ἕτερος ἐξ ἑτέρων μονάδων, ὥσπερ φασίν), ἐντελεχείᾳ δ' οὔ, ἔστι μονὰς ἑκατέρα· αἴτιον δὲ τῆς συμβαινούσης ἁμαρτίας ὅτι ἅμα ἐκ τῶν μαθημάτων ἐθήρευον καὶ ἐκ τῶν λόγων τῶν καθόλου, ὥστ' ἐξ ἐκείνων μὲν ὡς στιγμὴν τὸ ἓν καὶ τὴν ἀρχὴν ἔθηκαν (ἡ γὰρ μονὰς στιγμὴ ἄθετός ἐστιν· καθάπερ οὖν καὶ ἕτεροί τινες ἐκ τοῦ ἐλαχίστου τὰ ὄντα συνετίθεσαν, καὶ οὗτοι, ὥστε γίγνεται ἡ μονὰς ὕλη τῶν ἀριθμῶν, καὶ ἅμα προτέρα τῆς δυάδος, πάλιν δ' ὑστέρα ὡς ὅλου τινὸς καὶ ἑνὸς καὶ εἴδους τῆς δυάδος οὔσης)· διὰ δὲ τὸ καθόλου ζητεῖν τὸ κατηγορούμενον ἓν καὶ οὕτως ὡς μέρος ἔλεγον. ταῦτα δ' ἅμα τῷ αὐτῷ ἀδύνατον ὑπάρχειν.

For each of the two is one in a way. In truth each unit exists potentially (at least if number is some one thing and not like a heap, but each number is made of different units, as they say), but not in actuality. The cause of the error they fall into is that they were hunting at the same time from mathematics and from universal definitions. From mathematics they posited the One, their principle, as a point (for the unit is a point without position; so, just as some others put the things that are together out of the smallest thing, so did these thinkers, with the result that the unit becomes the matter of numbers, and at the same time prior to the dyad—and yet again posterior, since the dyad is a whole, a unity, and a form). But because they were seeking the universal, they spoke of the One that is predicated of things as a part in this way too.

GREEK

ENGLISH

These characteristics cannot belong to the same thing at the same time.

εἰ δὲ τὸ ἓν αὐτὸ δεῖ †μόνον ἄθετον† εἶναι (οὐθενὶ γὰρ διαφέρει ἢ ὅτι ἀρχή), καὶ ἡ μὲν δυὰς διαιρετὴ ἡ δὲ μονὰς οὔ, ὁμοιοτέρα ἂν εἴη τῷ ἑνὶ αὐτῷ ἡ μονάς. εἰ δ' ἡ μονάς, κἀκεῖνο τῇ μονάδι ἢ τῇ δυάδι· ὥστε προτέρα ἂν εἴη ἑκατέρα ἡ μονὰς τῆς δυάδος. οὔ φασι δέ· γεννῶσι γοῦν τὴν δυάδα πρῶτον. 1085a ἔτι εἰ ἔστιν ἡ δυὰς ἕν τι αὐτὴ καὶ ἡ τριὰς αὐτή, ἄμφω δυάς. ἐκ τίνος οὖν αὕτη ἡ δυάς;

If the One itself must be only without position (for it differs in nothing except that it is a principle), and the dyad is divisible while the unit is not, the unit would be more like the One itself. And if the unit is, the One itself would be more like the unit than like the dyad; so each of the two units would be prior to the dyad. But they deny this; at any rate they generate the dyad first. 1085a Further, if the dyad-itself is one thing and so is the triad-itself, the two together make a dyad. From what, then, does this dyad come?[4]

LINES, PLANES, SOLIDS AND THE ONE

Deriving magnitudes from the great and small or from points raises the same difficulties.

GREEK

ENGLISH

1085a ἀπορήσειε δ' ἄν τις καὶ ἐπεὶ ἀφὴ μὲν οὐκ ἔστιν ἐν τοῖς ἀριθμοῖς, τὸ δ' ἐφεξῆς, ὅσων μὴ ἔστι μεταξὺ μονάδων (οἷον τῶν ἐν τῇ δυάδι ἢ τῇ τριάδι), πότερον ἐφεξῆς τῷ ἑνὶ αὐτῷ ἢ οὔ, καὶ πότερον ἡ δυὰς προτέρα τῶν ἐφεξῆς ἢ τῶν μονάδων ὁποτεραοῦν.—ὁμοίως δὲ καὶ περὶ τῶν ὕστερον γενῶν τοῦ ἀριθμοῦ συμβαίνει τὰ δυσχερῆ, γραμμῆς τε καὶ ἐπιπέδου καὶ σώματος. οἱ μὲν γὰρ ἐκ τῶν εἰδῶν τοῦ μεγάλου καὶ τοῦ μικροῦ ποιοῦσιν, οἷον ἐκ μακροῦ μὲν καὶ βραχέος τὰ μήκη, πλατέος δὲ καὶ στενοῦ τὰ ἐπίπεδα, ἐκ βαθέος δὲ καὶ ταπεινοῦ τοὺς ὄγκους· ταῦτα δέ ἐστιν εἴδη τοῦ μεγάλου καὶ μικροῦ. τὴν δὲ κατὰ τὸ ἓν ἀρχὴν ἄλλοι ἄλλως τιθέασι τῶν τοιούτων.

One might also be puzzled on the following point. There is no contact among numbers, but there is succession among units with nothing between them (those in the dyad or the triad, for instance). Are these units in succession with the One itself or not? And is the dyad prior to the units that succeed it, or to either of its own units?—The same difficulties arise with the classes that come after number: line, plane, and body. Some make these out of the species of the great and small—lengths from long and short, planes from broad and narrow, solids from deep and shallow; these are species of the great and small. The principle corresponding to the One, different people posit differently among such things.

καὶ ἐν τούτοις δὲ μυρία φαίνεται τά τε ἀδύνατα καὶ τὰ πλασματώδη καὶ τὰ ὑπεναντία πᾶσι τοῖς εὐλόγοις. ἀπολελυμένα τε γὰρ ἀλλήλων συμβαίνει, εἰ μὴ συνακολουθοῦσι καὶ αἱ ἀρχαὶ ὥστ' εἶναι τὸ πλατὺ καὶ στενὸν καὶ μακρὸν καὶ βραχύ (εἰ δὲ τοῦτο, ἔσται τὸ ἐπίπεδον γραμμὴ καὶ τὸ στερεὸν ἐπίπεδον· ἔτι δὲ γωνίαι καὶ σχήματα καὶ τὰ τοιαῦτα πῶς ἀποδοθήσεται;), ταὐτό τε συμβαίνει τοῖς περὶ τὸν ἀριθμόν· ταῦτα γὰρ πάθη μεγέθους ἐστίν, ἀλλ' οὐκ ἐκ τούτων τὸ μέγεθος, ὥσπερ οὐδ' ἐξ εὐθέος καὶ καμπύλου τὸ μῆκος οὐδ' ἐκ λείου καὶ τραχέος τὰ στερεά.—πάντων δὲ κοινὸν τούτων ὅπερ ἐπὶ τῶν εἰδῶν τῶν ὡς γένους συμβαίνει διαπορεῖν, ὅταν τις θῇ τὰ καθόλου, πότερον τὸ ζῷον αὐτὸ ἐν τῷ ζῴῳ ἢ ἕτερον αὐτοῦ ζῴου.

In these too countless impossibilities and fictions come to light, things contrary to all reason. For the results are cut off from one another, unless the principles also go together, so that the broad and narrow is also long and short (but if so, the plane will be a line and the solid a plane; and further, how will angles and figures and the like be accounted for?). And the same thing happens as with number: these are attributes of magnitude, but magnitude is not made of them, any more than length is made of straight and curved, or solids of smooth and rough.—Common to all these is the puzzle that arises with Forms taken as genera, whenever someone posits universals: whether it is

4 The Greek text here is corrupt, and the sense of "only without position" is uncertain.

GREEK

ENGLISH

animal-itself that is in the animal, or something other than animal-itself.

τοῦτο γὰρ μὴ χωριστοῦ μὲν ὄντος οὐδεμίαν ποιήσει ἀπορίαν· χωριστοῦ δέ, ὥσπερ οἱ ταῦτα λέγοντές φασι, τοῦ ἑνὸς καὶ τῶν ἀριθμῶν οὐ ῥᾴδιον λῦσαι, εἰ μὴ ῥᾴδιον δεῖ λέγειν τὸ ἀδύνατον. ὅταν γὰρ νοῇ τις ἐν τῇ δυάδι τὸ ἓν καὶ ὅλως ἐν ἀριθμῷ, πότερον αὐτὸ νοεῖ τι ἢ ἕτερον;—οἱ μὲν οὖν τὰ μεγέθη γεννῶσιν ἐκ τοιαύτης ὕλης, ἕτεροι δὲ ἐκ τῆς στιγμῆς (ἡ δὲ στιγμὴ αὐτοῖς δοκεῖ εἶναι οὐχ ἓν ἀλλ' οἷον τὸ ἕν) καὶ ἄλλης ὕλης οἵας τὸ πλῆθος, ἀλλ' οὐ πλήθους· περὶ ὧν οὐδὲν ἧττον συμβαίνει τὰ αὐτὰ ἀπορεῖν.

If the universal is not separate, this will raise no puzzle. But if the One and the numbers are separate, as those who say these things claim, it is not easy to solve—if one should call the impossible "not easy." For when someone thinks of the One in the dyad, or generally in a number, is he thinking of the thing itself or of something else?—Some, then, generate magnitudes from matter of this kind; others generate them from the point (the point seems to them to be not one but like the One) and from another matter like plurality, though not plurality; and about these the same puzzles arise no less.

εἰ μὲν γὰρ μία ἡ ὕλη, ταὐτὸ γραμμὴ καὶ ἐπίπεδον καὶ στερεόν (ἐκ γὰρ τῶν αὐτῶν τὸ αὐτὸ καὶ ἓν ἔσται)· 1085b εἰ δὲ πλείους αἱ ὕλαι καὶ ἑτέρα μὲν γραμμῆς ἑτέρα δὲ τοῦ ἐπιπέδου καὶ ἄλλη τοῦ στερεοῦ, ἤτοι ἀκολουθοῦσιν ἀλλήλαις ἢ οὔ, ὥστε ταὐτὰ συμβήσεται καὶ οὕτως· ἢ γὰρ οὐχ ἕξει τὸ ἐπίπεδον γραμμὴν ἢ ἔσται γραμμή.—ἔτι πῶς μὲν ἐνδέχεται εἶναι ἐκ τοῦ ἑνὸς καὶ πλήθους τὸν ἀριθμὸν οὐθὲν ἐπιχειρεῖται· ὅπως δ' οὖν λέγουσι ταὐτὰ συμβαίνει δυσχερῆ ἅπερ καὶ τοῖς ἐκ τοῦ ἑνὸς καὶ ἐκ τῆς δυάδος τῆς ἀορίστου.

For if the matter is one, line, plane, and solid are the same (for from the same things one and the same thing will result). 1085b But if the matters are several—one of the line, another of the plane, another of the solid—either they go together with one another or they don't; so the same consequences follow in this way too: either the plane will not contain a line, or it will be a line.—Further, no attempt is made to explain how number can come from the One and plurality; but however they put it, the same difficulties arise as for those who derive it from the One and the indefinite dyad.

1085b ὁ μὲν γὰρ ἐκ τοῦ κατηγορουμένου καθόλου γεννᾷ τὸν ἀριθμὸν καὶ οὐ τινὸς πλήθους, ὁ δ' ἐκ τινὸς πλήθους, τοῦ πρώτου δέ (τὴν γὰρ δυάδα πρῶτόν τι εἶναι πλῆθος), ὥστε διαφέρει οὐθὲν ὡς εἰπεῖν, ἀλλ' αἱ ἀπορίαι αἱ αὐταὶ ἀκολουθήσουσι, μῖξις ἢ θέσις ἢ κρᾶσις ἢ γένεσις καὶ ὅσα ἄλλα τοιαῦτα. μάλιστα δ' ἄν τις ἐπιζητήσειεν, εἰ μία ἑκάστη μονάς, ἐκ τίνος ἐστίν· οὐ γὰρ δὴ αὐτό γε τὸ ἓν ἑκάστη. ἀνάγκη δὴ ἐκ τοῦ ἑνὸς αὐτοῦ εἶναι καὶ πλήθους ἢ μορίου τοῦ πλήθους.

For one thinker generates number from what is predicated universally, and not from some particular plurality; another from some particular plurality, but the first one (for he says the dyad is a first plurality). So there is practically no difference, and the same puzzles will follow—mixture, position, blending, generation, and all the rest of that kind. Above all, one might ask: if each unit is one, what does it come from? For each is certainly not the One itself. It must come from the One itself and plurality, or from a part of plurality.

τὸ μὲν οὖν πλῆθός τι εἶναι φάναι τὴν μονάδα ἀδύνατον, ἀδιαίρετόν γ' οὖσαν· τὸ δ' ἐκ μορίου ἄλλας ἔχει πολλὰς δυσχερείας· ἀδιαίρετόν τε γὰρ ἕκαστον ἀναγκαῖον εἶναι τῶν μορίων (ἢ πλῆθος εἶναι καὶ τὴν μονάδα διαιρετήν) καὶ μὴ στοιχεῖον εἶναι τὸ ἓν καὶ τὸ πλῆθος (ἡ γὰρ μονὰς ἑκάστη οὐκ ἐκ πλήθους καὶ ἑνός)· ἔτι οὐθὲν ἄλλο ποιεῖ ὁ τοῦτο λέγων ἀλλ' ἢ ἀριθμὸν ἕτερον· τὸ γὰρ πλῆθος ἀδιαιρέτων ἐστὶν ἀριθμός. ἔτι ζητητέον καὶ περὶ τοὺς οὕτω λέγοντας πότερον ἄπειρος ὁ ἀριθμὸς ἢ πεπερασμένος. ὑπῆρχε γάρ, ὡς ἔοικε, καὶ πεπερασμένον

To say that the unit is a plurality is impossible, since it is indivisible. To say it comes from a part of plurality raises many other difficulties. Each of the parts must be indivisible (or else be a plurality, and the unit divisible), and the One and plurality will not be elements (for each unit does not come from plurality and the One). Further, whoever says this does nothing but produce another number; for a plurality of indivisibles is a number. Further, we must ask those who talk this way

GREEK

πλῆθος, ἐξ οὗ αἱ πεπερασμέναι μονάδες καὶ τοῦ ἑνός· ἔστι τε ἕτερον αὐτὸ πλῆθος καὶ πλῆθος ἄπειρον· ποῖον οὖν πλῆθος στοιχεῖόν ἐστι καὶ τὸ ἕν;

ὁμοίως δὲ καὶ περὶ στιγμῆς ἄν τις ζητήσειε καὶ τοῦ στοιχείου ἐξ οὗ ποιοῦσι τὰ μεγέθη. οὐ γὰρ μία γε μόνον στιγμή ἐστιν αὕτη· τῶν γοῦν ἄλλων στιγμῶν ἑκάστη ἐκ τίνος; οὐ γὰρ δὴ ἔκ γε διαστήματός τινος καὶ αὐτῆς στιγμῆς. ἀλλὰ μὴν οὐδὲ μόρια ἀδιαίρετα ἐνδέχεται τοῦ διαστήματος εἶναι [μόρια], ὥσπερ τοῦ πλήθους ἐξ ὧν αἱ μονάδες· ὁ μὲν γὰρ ἀριθμὸς ἐξ ἀδιαιρέτων σύγκειται τὰ δὲ μεγέθη οὔ.—πάντα δὴ ταῦτα καὶ ἄλλα τοιαῦτα φανερὸν ποιεῖ ὅτι ἀδύνατον εἶναι τὸν ἀριθμὸν καὶ τὰ μεγέθη χωριστά, [1086a] ἔτι δὲ τὸ διαφωνεῖν τοὺς τρόπους περὶ τῶν ἀριθμῶν σημεῖον ὅτι τὰ πράγματα αὐτὰ οὐκ ὄντα ἀληθῆ παρέχει τὴν ταραχὴν αὐτοῖς.

1086a οἱ μὲν γὰρ τὰ μαθηματικὰ μόνον ποιοῦντες παρὰ τὰ αἰσθητά, ὁρῶντες τὴν περὶ τὰ εἴδη δυσχέρειαν καὶ πλάσιν, ἀπέστησαν ἀπὸ τοῦ εἰδητικοῦ ἀριθμοῦ καὶ τὸν μαθηματικὸν ἐποίησαν· οἱ δὲ τὰ εἴδη βουλόμενοι ἅμα καὶ ἀριθμοὺς ποιεῖν, οὐχ ὁρῶντες δέ, εἰ τὰς ἀρχάς τις ταύτας θήσεται, πῶς ἔσται ὁ μαθηματικὸς ἀριθμὸς παρὰ τὸν εἰδητικόν, τὸν αὐτὸν εἰδητικὸν καὶ μαθηματικὸν ἐποίησαν ἀριθμὸν τῷ λόγῳ, ἐπεὶ ἔργῳ γε ἀνῄρηται ὁ μαθηματικός (ἰδίας γὰρ καὶ οὐ μαθηματικὰς ὑποθέσεις λέγουσιν)· ὁ δὲ πρῶτος θέμενος τὰ εἴδη εἶναι καὶ ἀριθμοὺς τὰ εἴδη καὶ τὰ μαθηματικὰ εἶναι εὐλόγως ἐχώρισεν· ὥστε πάντας συμβαίνει κατὰ μέν τι λέγειν ὀρθῶς, ὅλως δ' οὐκ ὀρθῶς. καὶ αὐτοὶ δὲ ὁμολογοῦσιν οὐ ταὐτὰ λέγοντες ἀλλὰ τὰ ἐναντία. αἴτιον δ' ὅτι αἱ ὑποθέσεις καὶ αἱ ἀρχαὶ ψευδεῖς.

χαλεπὸν δ' ἐκ μὴ καλῶς ἐχόντων λέγειν καλῶς, κατ' Ἐπίχαρμον· ἀρτίως τε γὰρ λέλεκται, καὶ εὐθέως φαίνεται οὐ καλῶς ἔχον.—ἀλλὰ περὶ μὲν τῶν ἀριθμῶν ἱκανὰ τὰ διηπορημένα καὶ διωρισμένα (μᾶλλον γὰρ ἐκ πλειόνων ἂν ἔτι πεισθείη τις πεπεισμένος, πρὸς δὲ τὸ πεισθῆναι μὴ πεπεισμένος οὐθὲν μᾶλλον)· περὶ δὲ τῶν πρώτων ἀρχῶν καὶ τῶν πρώτων αἰτίων καὶ στοιχείων ὅσα μὲν λέγουσιν οἱ περὶ μόνης τῆς αἰσθητῆς οὐσίας διορίζοντες, τὰ μὲν ἐν τοῖς περὶ φύσεως εἴρηται, τὰ δ' οὐκ ἔστι τῆς μεθόδου τῆς

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whether number is infinite or finite. For there was, it seems, also a finite plurality, from which, together with the One, the finite units come; and plurality-itself is different from infinite plurality. Which plurality, then, is the element, together with the One?

One might ask the same about the point, and the element from which they make magnitudes. For this is surely not the only point. At any rate, where does each of the other points come from? Certainly not from some extension plus the point-itself. Nor can there be indivisible parts of the extension, as there are parts of the plurality from which the units come; for number is composed of indivisibles, but magnitudes are not.—All these considerations and others like them make it clear that number and magnitudes cannot be separate. [1086a] Further, the disagreement among the accounts of numbers is a sign that it is the facts themselves, being untrue, that throw these thinkers into confusion.

Those who posit only mathematical objects besides perceptible things saw the difficulty and artificiality of the Forms, so they abandoned form-number and posited mathematical number. Those who wanted to make the Forms numbers at the same time, but did not see how, if one posits these principles, mathematical number would exist besides form-number, made form-number and mathematical number the same in word—since in fact mathematical number has been done away with (for the hypotheses they state are peculiar to themselves, not mathematical). And the first to posit that there are Forms, that the Forms are numbers, and that there are mathematical objects, reasonably separated them. So it turns out that all of them are right in some respect, but not right overall. They themselves confirm it, since they say not the same things but contrary ones. The cause is that their hypotheses and principles are false.

It is hard to speak well from what is not well, as Epicharmus says: "for it's only just been said, and straight away it's plainly not well."—But about numbers, the puzzles and distinctions we have gone through are enough. (Someone already persuaded would be persuaded still more by more arguments, but someone not persuaded would come no nearer to it.) As for the first principles, first causes, and elements: what is said by those who

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νῦν· ὅσα δὲ οἱ φάσκοντες εἶναι παρὰ τὰς αἰσθητὰς ἑτέρας οὐσίας, ἐχόμενόν ἐστι θεωρῆσαι τῶν εἰρημένων.	make determinations only about perceptible substance has partly been discussed in the works on nature and partly does not belong to the present inquiry; but what is said by those who claim there are other substances besides perceptible ones is next to consider after what has been said.
ἐπεὶ οὖν λέγουσί τινες τοιαύτας εἶναι τὰς ἰδέας καὶ τοὺς ἀριθμούς, καὶ τὰ τούτων στοιχεῖα τῶν ὄντων εἶναι στοιχεῖα καὶ ἀρχάς, σκεπτέον περὶ τούτων τί λέγουσι καὶ πῶς λέγουσιν. οἱ μὲν οὖν ἀριθμοὺς ποιοῦντες μόνον καὶ τούτους μαθηματικοὺς ὕστερον ἐπισκεπτέοι· τῶν δὲ τὰς ἰδέας λεγόντων ἅμα τόν τε τρόπον θεάσαιτ' ἄν τις καὶ τὴν ἀπορίαν τὴν περὶ αὐτῶν. ἅμα γὰρ καθόλου τε [ὡς οὐσίας] ποιοῦσι τὰς ἰδέας καὶ πάλιν ὡς χωριστὰς καὶ τῶν καθ' ἕκαστον. ταῦτα δ' ὅτι οὐκ ἐνδέχεται διηπόρηται πρότερον.	Since some say that the Forms and the numbers are such substances, and that their elements are the elements and principles of the things that are, we must examine what they say and how they say it. Those who posit only numbers, and mathematical ones at that, must be examined later; but in the case of those who speak of Forms one can view at once their way of thinking and the puzzle about it. For they make the Forms universal, and at the same time, again, separate and particular. That this is not possible has been argued through in the puzzles earlier.
αἴτιον δὲ τοῦ συνάψαι ταῦτα εἰς ταὐτὸν τοῖς λέγουσι τὰς οὐσίας καθόλου, ὅτι τοῖς αἰσθητοῖς οὐ τὰς αὐτὰς [οὐσίας] ἐποίουν· τὰ μὲν οὖν ἐν τοῖς αἰσθητοῖς καθ' ἕκαστα ῥεῖν ἐνόμιζον καὶ μένειν οὐθὲν αὐτῶν, [1086b] τὸ δὲ καθόλου παρὰ ταῦτα εἶναί τε καὶ ἕτερόν τι εἶναι. τοῦτο δ', ὥσπερ ἐν τοῖς ἔμπροσθεν ἐλέγομεν, ἐκίνησε μὲν Σωκράτης διὰ τοὺς ὁρισμούς, οὐ μὴν ἐχώρισέ γε τῶν καθ' ἕκαστον· καὶ τοῦτο ὀρθῶς ἐνόησεν οὐ χωρίσας. δηλοῖ δὲ ἐκ τῶν ἔργων· ἄνευ μὲν γὰρ τοῦ καθόλου οὐκ ἔστιν ἐπιστήμην λαβεῖν, τὸ δὲ χωρίζειν αἴτιον τῶν συμβαινόντων δυσχερῶν περὶ τὰς ἰδέας ἐστίν.	The reason why those who say that substances are universal combined these characteristics in the same thing is that they did not make them the same as perceptible things. They thought that the particulars in the perceptible world were in flux and none of them stayed, [1086b] but that the universal existed besides these and was something different. Socrates, as we said earlier, set this going through his definitions; but he did not separate universals from particulars, and in not separating them he thought rightly. The results make it plain. Without the universal it is impossible to get knowledge, but separating it is the cause of the difficulties that arise about the Forms.
1086b οἱ δ' ὡς ἀναγκαῖον, εἴπερ ἔσονταί τινες οὐσίαι παρὰ τὰς αἰσθητὰς καὶ ῥεούσας, χωριστὰς εἶναι, ἄλλας μὲν οὐκ εἶχον ταύτας δὲ τὰς καθόλου λεγομένας ἐξέθεσαν, ὥστε συμβαίνειν σχεδὸν τὰς αὐτὰς φύσεις εἶναι τὰς καθόλου καὶ τὰς καθ' ἕκαστον. αὕτη μὲν οὖν αὐτὴ καθ' αὑτὴν εἴη τις ἂν δυσχέρεια τῶν εἰρημένων.	The others, believing that if there were to be any substances besides the perceptible ones that are in flux, they must be separate, had no others to offer, so they set out as separate those that are spoken of universally. So it followed that universals and particulars were practically the same natures. This, then, would be one difficulty in its own right in the view we have described.

ARE THE PRINCIPLES UNIVERSAL OR PARTICULAR?

Knowledge is of universals, yet substance is particular; potential and actual knowledge resolve the puzzle.

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ὃ δὲ καὶ τοῖς λέγουσι τὰς ἰδέας ἔχει τινὰ ἀπορίαν καὶ τοῖς μὴ λέγουσιν, καὶ κατ' ἀρχὰς ἐν τοῖς διαπορήμασιν ἐλέχθη πρότερον, λέγωμεν νῦν. εἰ μὲν γάρ τις μὴ θήσει τὰς οὐσίας εἶναι κεχωρισμένας, καὶ τὸν τρόπον τοῦτον ὡς	Let us now discuss a point that raises a puzzle both for those who speak of Forms and for those who don't, and that was mentioned earlier, at the

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λέγεται τὰ καθ' ἕκαστα τῶν ὄντων, ἀναιρήσει τὴν οὐσίαν ὡς βουλόμεθα λέγειν· ἂν δέ τις θῇ τὰς οὐσίας χωριστάς, πῶς θήσει τὰ στοιχεῖα καὶ τὰς ἀρχὰς αὐτῶν;

εἰ μὲν γὰρ καθ' ἕκαστον καὶ μὴ καθόλου, τοσαῦτ' ἔσται τὰ ὄντα ὅσαπερ τὰ στοιχεῖα, καὶ οὐκ ἐπιστητὰ τὰ στοιχεῖα (ἔστωσαν γὰρ αἱ μὲν ἐν τῇ φωνῇ συλλαβαὶ οὐσίαι τὰ δὲ στοιχεῖα αὐτῶν στοιχεῖα τῶν οὐσιῶν· ἀνάγκη δὴ τὸ ΒΑ ἓν εἶναι καὶ ἑκάστην τῶν συλλαβῶν μίαν, εἴπερ μὴ καθόλου καὶ τῷ εἴδει αἱ αὐταὶ ἀλλὰ μία ἑκάστη τῷ ἀριθμῷ καὶ τόδε τι καὶ μὴ ὁμώνυμον· ἔτι δ' αὐτὸ ὃ ἔστιν ἓν ἕκαστον τιθέασιν· εἰ δ' αἱ συλλαβαί, οὕτω καὶ ἐξ ὧν εἰσίν· οὐκ ἔσται ἄρα πλείω ἄλφα ἑνός, οὐδὲ τῶν ἄλλων στοιχείων οὐθὲν κατὰ τὸν αὐτὸν λόγον ὅνπερ οὐδὲ τῶν [ἄλλων] συλλαβῶν ἡ αὐτὴ ἄλλη καὶ ἄλλη·

ἀλλὰ μὴν εἰ τοῦτο, οὐκ ἔσται παρὰ τὰ στοιχεῖα ἕτερα ὄντα, ἀλλὰ μόνον τὰ στοιχεῖα· ἔτι δὲ οὐδ' ἐπιστητὰ τὰ στοιχεῖα· οὐ γὰρ καθόλου, ἡ δ' ἐπιστήμη τῶν καθόλου· δῆλον δ' ἐκ τῶν ἀποδείξεων καὶ τῶν ὁρισμῶν, οὐ γὰρ γίγνεται συλλογισμὸς ὅτι τόδε τὸ τρίγωνον δύο ὀρθαῖς, εἰ μὴ πᾶν τρίγωνον δύο ὀρθαί, οὐδ' ὅτι ὁδὶ ὁ ἄνθρωπος ζῷον, εἰ μὴ πᾶς ἄνθρωπος ζῷον)· 1087a ἀλλὰ μὴν εἴγε καθόλου αἱ ἀρχαί, ἢ καὶ αἱ ἐκ τούτων οὐσίαι καθόλου ⟨ἢ⟩ ἔσται μὴ οὐσία πρότερον οὐσίας· τὸ μὲν γὰρ καθόλου οὐκ οὐσία, τὸ δὲ στοιχεῖον καὶ ἡ ἀρχὴ καθόλου, πρότερον δὲ τὸ στοιχεῖον καὶ ἡ ἀρχὴ ὧν ἀρχὴ καὶ στοιχεῖόν ἐστιν.

1087a ταῦτά τε δὴ πάντα συμβαίνει εὐλόγως, ὅταν ἐκ στοιχείων τε ποιῶσι τὰς ἰδέας καὶ παρὰ τὰς τὸ αὐτὸ εἶδος ἐχούσας οὐσίας [καὶ ἰδέας] ἕν τι ἀξιῶσιν εἶναι καχωρισμένον· εἰ δὲ μηθὲν κωλύει ὥσπερ ἐπὶ τῶν τῆς φωνῆς στοιχείων πολλὰ εἶναι τὰ ἄλφα καὶ τὰ βῆτα καὶ μηθὲν εἶναι παρὰ τὰ πολλὰ αὐτὸ ἄλφα καὶ αὐτὸ βῆτα, ἔσονται ἕνεκά γε τούτου ἄπειροι αἱ ὅμοιαι συλλαβαί. τὸ δὲ τὴν ἐπιστήμην εἶναι καθόλου πᾶσαν, ὥστε ἀναγκαῖον εἶναι καὶ τὰς τῶν ὄντων ἀρχὰς καθόλου εἶναι καὶ μὴ οὐσίας κεχωρισμένας, ἔχει μὲν μάλιστ' ἀπορίαν τῶν λεχθέντων, οὐ μὴν ἀλλὰ ἔστι μὲν ὡς ἀληθὲς τὸ λεγόμενον, ἔστι δ' ὡς οὐκ ἀληθές. ἡ γὰρ

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beginning, among the puzzles. If someone does not posit substances as separate, and separate in the way particular things are said to be, he will do away with substance as we mean it. But if someone posits substances as separate, how will he posit their elements and principles?[5]

If these are particular and not universal, there will be as many things as there are elements, and the elements will not be knowable. (Suppose the syllables in speech are substances and their letters are the elements of the substances. Then BA must be one, and each of the syllables one, since they are not universal and the same in form, but each is one in number, a this, and not something that merely shares a name. Further, they posit each thing "that is itself" as one. And if the syllables are like this, so are the things they are made of. So there will not be more than one A, nor more than one of any other letter, by the same argument by which there cannot be more than one of the same syllable.

But if so, there will not be other things besides the elements, but only the elements. Further, the elements will not be knowable either, for they are not universal, and knowledge is of universals. This is clear from demonstrations and definitions: there is no deduction that this triangle has angles equal to two right angles unless every triangle does, nor that this human being is an animal unless every human being is.) 1087a But if the principles are universal, either the substances made of them are universal as well, or non-substance will be prior to substance. For the universal is not a substance, but the element and the principle are universal, and the element and the principle are prior to what they are the principle and element of.

All these consequences follow reasonably when they make the Forms out of elements and claim that, besides the substances that have the same form, there is some one thing that is separate. But if nothing prevents it from being as with the elements of speech, where there are many As and Bs and no A-itself or B-itself besides the many, then on this account there will be infinitely many similar syllables. The claim that all knowledge is universal, so that the principles of the things that are must also be universal and not separate sub-

5 The reference is to Book B, the book of puzzles.

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ἐπιστήμη, ὥσπερ καὶ τὸ ἐπίστασθαι, διττόν, ὧν τὸ μὲν δυνάμει τὸ δὲ ἐνεργείᾳ.

ἡ μὲν οὖν δύναμις ὡς ὕλη [τοῦ] καθόλου οὖσα καὶ ἀόριστος τοῦ καθόλου καὶ ἀορίστου ἐστίν, ἡ δ' ἐνέργεια ὡρισμένη καὶ ὡρισμένου, τόδε τι οὖσα τοῦδέ τινος, ἀλλὰ κατὰ συμβεβηκὸς ἡ ὄψις τὸ καθόλου χρῶμα ὁρᾷ ὅτι τόδε τὸ χρῶμα ὃ ὁρᾷ χρῶμά ἐστιν, καὶ ὃ θεωρεῖ ὁ γραμματικός, τόδε τὸ ἄλφα ἄλφα· ἐπεὶ εἰ ἀνάγκη τὰς ἀρχὰς καθόλου εἶναι, ἀνάγκη καὶ τὰ ἐκ τούτων καθόλου, ὥσπερ ἐπὶ τῶν ἀποδείξεων· εἰ δὲ τοῦτο, οὐκ ἔσται χωριστὸν οὐθὲν οὐδ' οὐσία. ἀλλὰ δῆλον ὅτι ἔστι μὲν ὡς ἡ ἐπιστήμη καθόλου, ἔστι δ' ὡς οὔ.

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stances, raises the greatest puzzle of all we have mentioned. Yet what is said is true in one way and not true in another. For knowledge, like knowing, is twofold: one potential, the other actual.

The potentiality, being like matter, universal and indefinite, is of what is universal and indefinite; but the actuality, being definite and of something definite, is a this, of a this. Sight sees universal color only accidentally, because this color it sees is a color; and what the grammarian studies, this A, is an A. For if the principles must be universal, what comes from them must also be universal, as in demonstrations; and if so, nothing will be separate, nor will anything be a substance. But clearly knowledge is in one way universal and in another way not.

Book Nu (XIV)

Numbers and first principles in the Platonists.

CHAPTER 1

GREEK	ENGLISH
περὶ μὲν οὖν τῆς οὐσίας ταύτης εἰρήσθω τοσαῦτα, πάντες δὲ ποιοῦσι τὰς ἀρχὰς ἐναντίας, ὥσπερ ἐν τοῖς φυσικοῖς, καὶ περὶ τὰς ἀκινήτους οὐσίας ὁμοίως. εἰ δὲ τῆς τῶν ἁπάντων ἀρχῆς μὴ ἐνδέχεται πρότερόν τι εἶναι, ἀδύνατον ἂν εἴη τὴν ἀρχὴν ἕτερόν τι οὖσαν εἶναι ἀρχήν, οἷον εἴ τις λέγοι τὸ λευκὸν ἀρχὴν εἶναι οὐχ ᾗ ἕτερον ἀλλ' ᾗ λευκόν, εἶναι μέντοι καθ' ὑποκειμένου καὶ ἕτερόν τι ὂν λευκὸν εἶναι· ἐκεῖνο γὰρ πρότερον ἔσται. ἀλλὰ μὴν γίγνεται πάντα ἐξ ἐναντίων ὡς ὑποκειμένου τινός· ἀνάγκη ἄρα μάλιστα τοῖς ἐναντίοις τοῦθ' ὑπάρχειν. 1087b ἀεὶ ἄρα πάντα τὰ ἐναντία καθ' ὑποκειμένου καὶ οὐθὲν χωριστόν, ἀλλ' ὥσπερ καὶ φαίνεται οὐθὲν οὐσίᾳ ἐναντίον, καὶ ὁ λόγος μαρτυρεῖ.	About this kind of substance, then, let this much be said. All thinkers make the principles contraries, as in natural things, and likewise in the case of unchanging substances. But if nothing can be prior to the principle of all things, it would be impossible for the principle to be a principle while being something else. It would be as if someone said that the white is a principle, not as something else but as white, and yet that it is said of a subject, and is white by being something else; for that other thing will be prior. But all things come to be from contraries, as from some underlying subject; so this must belong to contraries above all. 1087b All contraries, then, are always said of a subject, and none is separate. Rather, just as appears to be the case, nothing is contrary to substance, and reason bears this out.
1087b οὐθὲν ἄρα τῶν ἐναντίων κυρίως ἀρχὴ πάντων ἀλλ' ἑτέρα. —οἱ δὲ τὸ ἕτερον τῶν ἐναντίων ὕλην ποιοῦσιν, οἱ μὲν τῷ ἑνὶ [τῷ ἴσῳ] τὸ ἄνισον, ὡς τοῦτο τὴν τοῦ πλήθους οὖσαν φύσιν, οἱ δὲ τῷ ἑνὶ τὸ πλῆθος (γεννῶνται γὰρ οἱ ἀριθμοὶ τοῖς μὲν ἐκ τῆς τοῦ ἀνίσου δυάδος, τοῦ μεγάλου καὶ μικροῦ, τῷ δ' ἐκ τοῦ πλήθους, ὑπὸ τῆς τοῦ ἑνὸς δὲ οὐσίας ἀμφοῖν)· καὶ γὰρ ὁ τὸ ἄνισον καὶ ἓν λέγων τὰ στοιχεῖα, τὸ δ' ἄνισον ἐκ μεγάλου καὶ μικροῦ δυάδα, ὡς ἓν ὄντα τὸ ἄνισον καὶ τὸ μέγα καὶ τὸ μικρὸν λέγει, καὶ οὐ διορίζει ὅτι λόγῳ ἀριθμῷ δ' οὔ.	None of the contraries, then, is strictly a principle of all things; the principle is something else.—But these thinkers make one of the contraries matter. Some set the unequal against the One, taking it to be the nature of plurality; others set plurality against the One. (For some, numbers are generated from the dyad of the unequal, the great and small; for one thinker, from plurality; but in both cases by the substance of the One.) For the one who says the unequal and the One are the elements, and that the unequal is a dyad made of great and small, speaks as though the unequal and the great and the small were one, and does not make the distinction that they are one in definition but not in number.
ἀλλὰ μὴν καὶ τὰς ἀρχὰς ἃς στοιχεῖα καλοῦσιν οὐ καλῶς ἀποδιδόασιν, οἱ μὲν τὸ μέγα καὶ τὸ μικρὸν λέγοντες μετὰ τοῦ ἑνός, τρία ταῦτα στοιχεῖα τῶν ἀριθμῶν, τὰ μὲν δύο ὕλην τὸ δ' ἓν τὴν μορφήν, οἱ δὲ τὸ πολὺ καὶ ὀλίγον, ὅτι τὸ μέγα καὶ τὸ μικρὸν μεγέθους οἰκειότερα τὴν φύσιν, οἱ δὲ τὸ καθόλου μᾶλλον ἐπὶ τούτων, τὸ ὑπερέχον καὶ τὸ ὑπερεχόμενον. διαφέρει δὲ τούτων οὐθὲν ὡς εἰπεῖν πρὸς	Moreover, they give a poor account of the principles they call elements. Some speak of the great and the small together with the One—three elements of numbers, the two as matter and the One as form. Others speak of the many and few, because the great and small are by nature more suited to magnitude. Others speak of what is more

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ἔνια τῶν συμβαινόντων, ἀλλὰ πρὸς τὰς λογικὰς μόνον δυσχερείας, ἃς φυλάττονται διὰ τὸ καὶ αὐτοὶ λογικὰς φέρειν τὰς ἀποδείξεις. πλὴν τοῦ αὐτοῦ γε λόγου ἐστὶ τὸ ὑπερέχον καὶ ὑπερεχόμενον εἶναι ἀρχὰς ἀλλὰ μὴ τὸ μέγα καὶ τὸ μικρόν, καὶ τὸν ἀριθμὸν πρότερον τῆς δυάδος ἐκ τῶν στοιχείων· καθόλου γὰρ ἀμφότερα μᾶλλόν ἐστιν.

νῦν δὲ τὸ μὲν λέγουσι τὸ δ' οὐ λέγουσιν. οἱ δὲ τὸ ἕτερον καὶ τὸ ἄλλο πρὸς τὸ ἓν ἀντιτιθέασιν, οἱ δὲ πλῆθος καὶ τὸ ἕν. εἰ δέ ἐστιν, ὥσπερ βούλονται, τὰ ὄντα ἐξ ἐναντίων, τῷ δὲ ἑνὶ ἢ οὐθὲν ἐναντίον ἢ εἴπερ ἄρα μέλλει, τὸ πλῆθος, τὸ δ' ἄνισον τῷ ἴσῳ καὶ τὸ ἕτερον τῷ ταὐτῷ καὶ τὸ ἄλλο αὐτῷ, μάλιστα μὲν οἱ τὸ ἓν τῷ πλήθει ἀντιτιθέντες ἔχονταί τινος δόξης, οὐ μὴν οὐδ' οὗτοι ἱκανῶς· ἔσται γὰρ τὸ ἓν ὀλίγον· πλῆθος μὲν γὰρ ὀλιγότητι τὸ δὲ πολὺ τῷ ὀλίγῳ ἀντίκειται.—τὸ δ' ἓν ὅτι μέτρον σημαίνει, φανερόν.

καὶ ἐν παντὶ ἔστι τι ἕτερον ὑποκείμενον, οἷον ἐν ἁρμονίᾳ δίεσις, ἐν δὲ μεγέθει δάκτυλος ἢ ποὺς ἤ τι τοιοῦτον, ἐν δὲ ῥυθμοῖς βάσις ἢ συλλαβή· ὁμοίως δὲ καὶ ἐν βάρει σταθμός τις ὡρισμένος ἐστίν· καὶ κατὰ πάντων δὲ τὸν αὐτὸν τρόπον, [1088a] ἐν μὲν τοῖς ποιοῖς ποιόν τι, ἐν δὲ τοῖς ποσοῖς ποσόν τι, καὶ ἀδιαίρετον τὸ μέτρον, τὸ μὲν κατὰ τὸ εἶδος τὸ δὲ πρὸς τὴν αἴσθησιν, ὡς οὐκ ὄντος τινὸς τοῦ ἑνὸς καθ' αὐτὸ οὐσίας. καὶ τοῦτο κατὰ λόγον· σημαίνει γὰρ τὸ ἓν ὅτι μέτρον πλήθους τινός, καὶ ὁ ἀριθμὸς ὅτι πλῆθος μεμετρημένον καὶ πλῆθος μέτρων (διὸ καὶ εὐλόγως οὐκ ἔστι τὸ ἓν ἀριθμός· οὐδὲ γὰρ τὸ μέτρον μέτρα, ἀλλ' ἀρχὴ καὶ τὸ μέτρον καὶ τὸ ἕν).

[1088a] δεῖ δὲ ἀεὶ τὸ αὐτό τι ὑπάρχειν πᾶσι τὸ μέτρον, οἷον εἰ ἵπποι, τὸ μέτρον ἵππος, καὶ εἰ ἄνθρωποι, ἄνθρωπος. εἰ δ' ἄνθρωπος καὶ ἵππος καὶ θεός, ζῷον ἴσως, καὶ ὁ ἀριθμὸς αὐτῶν ἔσται ζῷα. εἰ δ' ἄνθρωπος καὶ λευκὸν καὶ βαδίζον, ἥκιστα μὲν ἀριθμὸς τούτων διὰ τὸ ταὐτῷ πάντα ὑπάρχειν καὶ ἑνὶ κατὰ ἀριθμόν, ὅμως δὲ γενῶν ἔσται ὁ ἀριθμὸς ὁ τούτων, ἤ τινος ἄλλης τοιαύτης προσηγορίας.

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universal than these, the exceeding and the exceeded. None of these views differs at all, one might say, with regard to some of the consequences, but only with regard to the abstract difficulties, which they guard against because they themselves offer abstract proofs. Except that it belongs to the same argument that the exceeding and the exceeded are principles, rather than the great and the small, and that number comes from the elements before the dyad does; for both are more universal.

As it is, they say the one but not the other. Others set the different and the other against the One; others, plurality and the One. If the things that are come from contraries, as they want, and either nothing is contrary to the One or, if anything is to be, plurality is—while the unequal is contrary to the equal, the different to the same, and the other to the thing itself—then those who set the One against plurality have the best claim to plausibility; yet not even they are adequate. For the One will be few: plurality is opposed to fewness, and the many to the few.—That "one" signifies a measure is evident.

And in every case there is something else that underlies it: in a musical scale the quarter-tone, in magnitude the finger's breadth or the foot or something of that sort, in rhythms the beat or the syllable; likewise in weight there is some definite weight. And the same holds in all cases: [1088a] in qualities it is some quality, in quantities some quantity; and the measure is indivisible, one kind in form, another relative to perception—which shows that the one is not in its own right the substance of anything. And this is reasonable: for "one" signifies the measure of some plurality, and "number" a measured plurality, a plurality of measures. (That is why it is reasonable that the one is not a number: the measure is not measures, but both the measure and the one are principles.)

The measure must always be something the same that belongs to all the things measured: if the things are horses, the measure is horse; if human beings, human being. If they are a human being, a horse, and a god, the measure is perhaps living thing, and their number will be a number of living things. If they are human being, pale, and walking, there is hardly a number of these, since they all belong to the same thing, one in number; still,

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their number will be a number of kinds, or of some other such term.

οἱ δὲ τὸ ἄνισον ὡς ἕν τι, τὴν δυάδα δὲ ἀόριστον ποιοῦντες μεγάλου καὶ μικροῦ, πόρρω λίαν τῶν δοκούντων καὶ δυνατῶν λέγουσιν· πάθη τε γὰρ ταῦτα καὶ συμβεβηκότα μᾶλλον ἢ ὑποκείμενα τοῖς ἀριθμοῖς καὶ τοῖς μεγέθεσίν ἐστι, τὸ πολὺ καὶ ὀλίγον ἀριθμοῦ, καὶ μέγα καὶ μικρὸν μεγέθους, ὥσπερ ἄρτιον καὶ περιττόν, καὶ λεῖον καὶ τραχύ, καὶ εὐθὺ καὶ καμπύλον· ἔτι δὲ πρὸς ταύτῃ τῇ ἁμαρτίᾳ καὶ πρός τι ἀνάγκη εἶναι τὸ μέγα καὶ τὸ μικρὸν καὶ ὅσα τοιαῦτα· τὸ δὲ πρός τι πάντων ἥκιστα φύσις τις ἢ οὐσία [τῶν κατηγοριῶν] ἐστι, καὶ ὑστέρα τοῦ ποιοῦ καὶ ποσοῦ· καὶ πάθος τι τοῦ ποσοῦ τὸ πρός τι, ὥσπερ ἐλέχθη, ἀλλ' οὐχ ὕλη, εἴ τι ἕτερον καὶ τῷ ὅλως κοινῷ πρός τι καὶ τοῖς μέρεσιν αὐτοῦ καὶ εἴδεσιν.

Those who make the unequal a unity, and make the dyad an indefinite dyad of great and small, say things very far from what is plausible or possible. For these are attributes and accidents of numbers and magnitudes rather than their underlying subjects—the many and few of number, the great and small of magnitude—just like even and odd, smooth and rough, straight and curved. Further, besides this error, the great and the small and all such things must be relative; and the relative is least of all a nature or substance, and is posterior to quality and quantity. The relative is an attribute of quantity, as was said, not its matter, since something else is the matter both for the relative in general and for its parts and species.

οὐθὲν γάρ ἐστιν οὔτε μέγα οὔτε μικρόν, οὔτε πολὺ οὔτε ὀλίγον, οὔτε ὅλως πρός τι, ὃ οὐχ ἕτερόν τι ὂν πολὺ ἢ ὀλίγον ἢ μέγα ἢ μικρὸν ἢ πρός τί ἐστιν. σημεῖον δ' ὅτι ἥκιστα οὐσί τις καὶ ὄν τι τὸ πρός τι τὸ μόνου μὴ εἶναι γένεσιν αὐτοῦ μηδὲ φθορὰν μηδὲ κίνησιν ὥσπερ κατὰ τὸ ποσὸν αὔξησις καὶ φθίσις, κατὰ τὸ ποιὸν ἀλλοίωσις, κατὰ τόπον φορά, κατὰ τὴν οὐσίαν ἡ ἁπλῆ γένεσις καὶ φθορά, —ἀλλ' οὐ κατὰ τὸ πρός τι· ἄνευ γὰρ τοῦ κινηθῆναι ὁτὲ μὲν μεῖζον ὁτὲ δὲ ἔλαττον ἢ ἴσον ἔσται θατέρου κινηθέντος κατὰ τὸ ποσόν. [1088b] ἀνάγκη τε ἑκάστου ὕλην εἶναι τὸ δυνάμει τοιοῦτον, ὥστε καὶ οὐσίας· τὸ δὲ πρός τι οὔτε δυνάμει οὐσία οὔτε ἐνεργείᾳ.

For nothing is great or small, many or few, or relative at all, that is not many or few or great or small or relative by being something else. A sign that the relative is least of all a substance and a being is that it alone has no coming to be, destruction, or change of its own, as quantity has increase and decrease, quality alteration, place locomotion, and substance unqualified coming to be and destruction. Not so the relative: without being changed itself, one thing will be now greater, now smaller or equal, when the other has changed in quantity. [1088b] And the matter of each thing must be what is potentially such a thing, and so too for substance; but the relative is neither potentially nor actually a substance.

1088b ἄτοπον οὖν, μᾶλλον δὲ ἀδύνατον, τὸ οὐσίας μὴ οὐσίαν ποιεῖν στοιχεῖον καὶ πρότερον· ὕστερον γὰρ πᾶσαι αἱ κατηγορίαι. ἔτι δὲ τὰ στοιχεῖα οὐ κατηγορεῖται καθ' ὧν στοιχεῖα, τὸ δὲ πολὺ καὶ ὀλίγον καὶ χωρὶς καὶ ἅμα κατηγορεῖται ἀριθμοῦ, καὶ τὸ μακρὸν καὶ τὸ βραχὺ γραμμῆς, καὶ ἐπίπεδόν ἐστι καὶ πλατὺ καὶ στενόν. εἰ δὲ δὴ καὶ ἔστι τι πλῆθος οὗ τὸ μὲν ἀεί, ⟨τὸ⟩ ὀλίγον, οἷον ἡ δυάς (εἰ γὰρ πολύ, τὸ ἓν ἂν ὀλίγον εἴη), κἂν πολὺ ἁπλῶς εἴη, οἷον ἡ δεκὰς πολύ, [καὶ] εἰ ταύτης μή ἐστι πλεῖον, ἢ τὰ μύρια. πῶς οὖν ἔσται οὕτως ἐξ ὀλίγου καὶ πολλοῦ ὁ ἀριθμός; ἢ γὰρ ἄμφω ἔδει κατηγορεῖσθαι ἢ μηδέτερον· νῦν δὲ τὸ ἕτερον μόνον κατηγορεῖται.

It is absurd, then—or rather impossible—to make a non-substance an element of substance, and prior to it; for all the categories are posterior to substance. Further, elements are not predicated of the things they are elements of; but many and few are predicated of number, both separately and together, and long and short of the line, and a plane is both broad and narrow. And if there is in fact a plurality of which one term, few, is always predicated, like the dyad (for if it were many, the one would be few), there could also be something many without qualification—the decad, say, is many if there is nothing greater than it, or ten thousand is. How, then, will number come from few and many in this way? Either both should be

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	predicated of it or neither; but as it is, only one of them is.

ETERNAL THINGS CANNOT BE MADE OF ELEMENTS

Anything made of elements has matter and could fail to be, so it cannot be eternal.

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ἁπλῶς δὲ δεῖ σκοπεῖν, ἆρα δυνατὸν τὰ ἀΐδια ἐκ στοιχείων συγκεῖσθαι; ὕλην γὰρ ἔξει· σύνθετον γὰρ πᾶν τὸ ἐκ στοιχείων. εἰ τοίνυν ἀνάγκη, ἐξ οὗ ἐστιν, εἰ καὶ ἀεὶ ἔστι, κἄν, εἰ ἐγένετο, ἐκ τούτου γίγνεσθαι, γίγνεται δὲ πᾶν ἐκ τοῦ δυνάμει ὄντος τοῦτο ὃ γίγνεται (οὐ γὰρ ἂν ἐγένετο ἐκ τοῦ ἀδυνάτου οὐδὲ ἦν), τὸ δὲ δυνατὸν ἐνδέχεται καὶ ἐνεργεῖν καὶ μή, εἰ καὶ ὅτι μάλιστα ἀεὶ ἔστιν ὁ ἀριθμὸς ἢ ὁτιοῦν ἄλλο ὕλην ἔχον, ἐνδέχοιτ' ἂν μὴ εἶναι, ὥσπερ καὶ τὸ μίαν ἡμέραν ἔχον καὶ τὸ ὁποσαοῦν ἔτη· εἰ δ' οὕτω, καὶ τὸ τοσοῦτον χρόνον οὗ μὴ ἔστι πέρας. οὐκ ἂν τοίνυν εἴη ἀΐδια, εἴπερ μὴ ἀΐδιον τὸ ἐνδεχόμενον μὴ εἶναι, καθάπερ ἐν ἄλλοις λόγοις συνέβη πραγματευθῆναι.	We must consider in general whether eternal things can be composed of elements. They will have matter, since everything made of elements is composite. Now a thing must come to be from what it consists of, whether it has always existed or came to be; and everything that comes to be comes to be from what is potentially the thing it becomes (for it would not have come to be from what was incapable of it, nor would it have existed); and what is capable can either be actual or not. So however much number, or anything else that has matter, always exists, it could fail to be—just as what lasts one day can, and what lasts any number of years; and if so, so can what lasts for a time without limit. They would not, then, be eternal, if what is capable of not being is not eternal, as we had occasion to discuss in other works.
εἰ δέ ἐστι τὸ λεγόμενον νῦν ἀληθὲς καθόλου, ὅτι οὐδεμία ἐστὶν ἀΐδιος οὐσία ἐὰν μὴ ᾖ ἐνέργεια, τὰ δὲ στοιχεῖα ὕλη τῆς οὐσίας, οὐδεμιᾶς ἂν εἴη ἀϊδίου οὐσίας στοιχεῖα ἐξ ὧν ἐστιν ἐνυπαρχόντων. εἰσὶ δέ τινες οἳ δυάδα μὲν ἀόριστον ποιοῦσι τὸ μετὰ τοῦ ἑνὸς στοιχεῖον, τὸ δ' ἄνισον δυσχεραίνουσιν εὐλόγως διὰ τὰ συμβαίνοντα ἀδύνατα· οἷς τοσαῦτα μόνον ἀφῄρηται τῶν δυσχερῶν ὅσα διὰ τὸ ποιεῖν τὸ ἄνισον καὶ τὸ πρός τι στοιχεῖον ἀναγκαῖα συμβαίνει τοῖς λέγουσιν· ὅσα δὲ χωρὶς ταύτης τῆς δόξης, ταῦτα κἀκείνοις ὑπάρχειν ἀναγκαῖον, ἐάν τε τὸν εἰδητικὸν ἀριθμὸν ἐξ αὐτῶν ποιῶσιν ἐάν τε τὸν μαθηματικόν.—πολλὰ μὲν οὖν τὰ αἴτια τῆς ἐπὶ ταύτας τὰς αἰτίας ἐκτροπῆς, [1089a] μάλιστα δὲ τὸ ἀπορῆσαι ἀρχαϊκῶς.	If what we are now saying is universally true—that no substance is eternal unless it is actuality—and the elements are the matter of substance, then no eternal substance would have elements present in it from which it is composed. There are some who make the element that goes with the One an indefinite dyad, and who reasonably object to the unequal because of the impossible consequences. They are rid only of the difficulties that necessarily arise for those who make the unequal and the relative an element. But the difficulties that arise independently of this view must hold for them too, whether they construct form-number from these elements or mathematical number.—There are many causes of their straying toward these causes, [1089a] but above all that they framed the puzzle in an old-fashioned way.
1089a ἔδοξε γὰρ αὐτοῖς πάντ' ἔσεσθαι ἓν τὰ ὄντα, αὐτὸ τὸ ὄν, εἰ μή τις λύσει καὶ ὁμόσε βαδιεῖται τῷ Παρμενίδου λόγῳ οὐ γὰρ μήποτε τοῦτο δαμῇ, εἶναι μὴ ἐόντα, ἀλλ' ἀνάγκη εἶναι τὸ μὴ ὂν δεῖξαι ὅτι ἔστιν· οὕτω γάρ, ἐκ τοῦ ὄντος καὶ ἄλλου τινός, τὰ ὄντα ἔσεσθαι, εἰ πολλά ἐστιν. καίτοι πρῶτον μέν, εἰ τὸ ὂν πολλαχῶς (τὸ μὲν γὰρ [ὅτι] οὐσίαν σημαίνει, τὸ δ' ὅτι ποιόν, τὸ δ' ὅτι ποσόν, καὶ τὰς ἄλλας δὴ κατηγορίας), ποῖον οὖν τὰ ὄντα πάντα ἕν, εἰ μὴ τὸ μὴ	For it seemed to them that all the things that are would be one, being itself, unless one refuted Parmenides' saying and came to grips with it: "For never shall this be forced: that things that are not, are." They thought it necessary to show that what is not, is; for only so—from what is and something else—could the things that are be made, if they are many. Yet, first, if "being" has many senses (in one

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ὂν ἔσται; πότερον αἱ οὐσίαι, ἢ τὰ πάθη καὶ τὰ ἄλλα δὴ ὁμοίως, ἢ πάντα, καὶ ἔσται ἓν τὸ τόδε καὶ τὸ τοιόνδε καὶ τὸ τοσόνδε καὶ τὰ ἄλλα ὅσα ἕν τι σημαίνει;

ἀλλ' ἄτοπον, μᾶλλον δὲ ἀδύνατον, τὸ μίαν φύσιν τινὰ γενομένην αἰτίαν εἶναι τοῦ τοῦ ὄντος τὸ μὲν τόδε εἶναι τὸ δὲ τοιόνδε τὸ δὲ τοσόνδε τὸ δὲ πού. ἔπειτα ἐκ ποίου μὴ ὄντος καὶ ὄντος τὰ ὄντα; πολλαχῶς γὰρ καὶ τὸ μὴ ὄν, ἐπειδὴ καὶ τὸ ὄν· καὶ τὸ μὲν μὴ ἄνθρωπον ⟨εἶναι⟩ σημαίνει τὸ μὴ εἶναι τοδί, τὸ δὲ μὴ εὐθὺ τὸ μὴ εἶναι τοιονδί, τὸ δὲ μὴ τρίπηχυ τὸ μὴ εἶναι τοσονδί. ἐκ ποίου οὖν ὄντος καὶ μὴ ὄντος πολλὰ τὰ ὄντα;

βούλεται μὲν δὴ τὸ ψεῦδος καὶ ταύτην τὴν φύσιν λέγειν τὸ οὐκ ὄν, ἐξ οὗ καὶ τοῦ ὄντος πολλὰ τὰ ὄντα, διὸ καὶ ἐλέγετο ὅτι δεῖ ψεῦδός τι ὑποθέσθαι, ὥσπερ καὶ οἱ γεωμέτραι τὸ ποδιαίαν εἶναι τὴν μὴ ποδιαίαν· ἀδύνατον δὲ ταῦθ' οὕτως ἔχειν, οὔτε γὰρ οἱ γεωμέτραι ψεῦδος οὐθὲν ὑποτίθενται (οὐ γὰρ ἐν τῷ συλλογισμῷ ἡ πρότασις), οὔτε ἐκ τοῦ οὕτω μὴ ὄντος τὰ ὄντα γίγνεται οὐδὲ φθείρεται.

ἀλλ' ἐπειδὴ τὸ μὲν κατὰ τὰς πτώσεις μὴ ὂν ἰσαχῶς ταῖς κατηγορίαις λέγεται, παρὰ τοῦτο δὲ τὸ ὡς ψεῦδος λέγεται [τὸ] μὴ ὂν καὶ τὸ κατὰ δύναμιν, ἐκ τούτου ἡ γένεσίς ἐστιν, ἐκ τοῦ μὴ ἀνθρώπου δυνάμει δὲ ἀνθρώπου ἄνθρωπος, καὶ ἐκ τοῦ μὴ λευκοῦ δυνάμει δὲ λευκοῦ λευκόν, ὁμοίως ἐάν τε ἕν τι γίγνηται ἐάν τε πολλά.—φαίνεται δὲ ἡ ζήτησις πῶς πολλὰ τὸ ὂν τὸ κατὰ τὰς οὐσίας λεγόμενον· ἀριθμοὶ γὰρ καὶ μήκη καὶ σώματα τὰ γεννώμενά ἐστιν. ἄτοπον δὴ τὸ ὅπως μὲν πολλὰ τὸ ὂν τὸ τί ἐστι ζητῆσαι, πῶς δὲ ἢ ποιὰ ἢ ποσά, μή.

οὐ γὰρ δὴ ἡ δυὰς ἡ ἀόριστος αἰτία οὐδὲ τὸ μέγα καὶ τὸ μικρὸν τοῦ δύο λευκὰ ἢ πολλὰ εἶναι χρώματα ἢ χυμοὺς ἢ σχήματα· [1089b] ἀριθμοὶ γὰρ ἂν καὶ ταῦτα ἦσαν καὶ μονάδες. ἀλλὰ μὴν εἴ γε ταῦτ' ἐπῆλθον, εἶδον ἂν τὸ αἴτιον καὶ τὸ ἐν ἐκείνοις· τὸ γὰρ αὐτὸ καὶ τὸ ἀνάλογον

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sense it signifies substance, in another quality, in another quantity, and so on for the other categories), what sort of one will all the things that are be, if what is not is not to be? Will it be the substances, or the attributes and the other categories likewise, or all of them—so that the this, the such, the so-much, and everything else that signifies some one thing, will be one?

But it is absurd, or rather impossible, that some single nature coming into being should be the cause of the fact that, of what is, one part is a this, another a such, another so-much, another somewhere. Next, from what sort of not-being and being do the things that are come? For "not-being" too has many senses, since "being" does. Not being a human being signifies not being this; not being straight, not being of this quality; not being three cubits long, not being of this size. From what sort of being and not-being, then, do the things that are come to be many?

He means the false, and this nature, to be the not-being from which, together with being, the things that are are many. That is why it used to be said that one must assume something false, just as geometers assume that a line is a foot long when it isn't. But it is impossible for things to be like this. Geometers assume nothing false (for this is not a premise in the deduction), nor do the things that are come to be or pass away from not-being in this sense.

But not-being in its various inflections has as many senses as there are categories, and besides these there is not-being in the sense of the false and in the sense of the potential. Coming to be is from this last: a human being comes from what is not a human being but is potentially a human being, and white from what is not white but is potentially white, likewise whether one thing comes to be or many.—The inquiry is evidently about how being, in the sense of substances, is many; for what they generate is numbers, lengths, and bodies. It is absurd, then, to inquire how being in the sense of the what-it-is is many, and not how qualities or quantities are.

For surely the indefinite dyad, or the great and the small, is not the cause of there being two whites, or many colors, flavors, or shapes; [1089b] otherwise these too would be numbers and units. Yet if they had gone into these cases, they would have seen

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αἴτιον. αὕτη γὰρ ἡ παρέκβασις αἰτία καὶ τοῦ τὸ ἀντικείμενον ζητοῦντας τῷ ὄντι καὶ τῷ ἑνί, ἐξ οὗ καὶ τούτων τὰ ὄντα, τὸ πρός τι καὶ τὸ ἄνισον ὑποθεῖναι, ὃ οὔτ' ἐναντίον οὔτ' ἀπόφασις ἐκείνων, μία τε φύσις τῶν ὄντων ὥσπερ καὶ τὸ τί καὶ τὸ ποῖον.

the cause in the other cases too; for the same thing, or an analogous one, is the cause. This digression is also the reason why, in looking for the opposite of being and the One, from which, together with these, the things that are come, they posited the relative and the unequal, which is neither the contrary nor the negation of those, but one nature among the things that are, just like the what and the quality.

1089b καὶ ζητεῖν ἔδει καὶ τοῦτο, πῶς πολλὰ τὰ πρός τι ἀλλ' οὐχ ἕν· νῦν δὲ πῶς μὲν πολλαὶ μονάδες παρὰ τὸ πρῶτον ἓν ζητεῖται, πῶς δὲ πολλὰ ἄνισα παρὰ τὸ ἄνισον οὐκέτι. καίτοι χρῶνται καὶ λέγουσι μέγα μικρόν, πολὺ ὀλίγον, ἐξ ὧν οἱ ἀριθμοί, μακρὸν βραχύ, ἐξ ὧν τὸ μῆκος, πλατὺ στενόν, ἐξ ὧν τὸ ἐπίπεδον, βαθὺ ταπεινόν, ἐξ ὧν οἱ ὄγκοι· καὶ ἔτι δὴ πλείω εἴδη λέγουσι τοῦ πρός τι·

They ought also to have asked this: how relatives are many and not one. As it is, they ask how there are many units besides the first one, but no longer how there are many unequals besides the unequal. Yet they make use of, and speak of, great and small, many and few (from which numbers come), long and short (from which the line comes), broad and narrow (from which the plane comes), deep and shallow (from which solid bulks come); and they go on to speak of still more kinds of relative.

τούτοις δὴ τί αἴτιον τοῦ πολλὰ εἶναι;—ἀνάγκη μὲν οὖν, ὥσπερ λέγομεν, ὑποθεῖναι τὸ δυνάμει ὂν ἑκάστῳ (τοῦτο δὲ προσαπεφήνατο ὁ ταῦτα λέγων, τί τὸ δυνάμει τόδε καὶ οὐσία, μὴ ὂν δὲ καθ' αὑτό, ὅτι τὸ πρός τι, ὥσπερ εἰ εἶπε τὸ ποιόν, ὃ οὔτε δυνάμει ἐστὶ τὸ ἓν ἢ τὸ ὂν οὔτε ἀπόφασις τοῦ ἑνὸς οὐδὲ τοῦ ὄντος ἀλλ' ἕν τι τῶν ὄντων), πολύ τε μᾶλλον, ὥσπερ ἐλέχθη, εἰ ἐζήτει πῶς πολλὰ τὰ ὄντα, μὴ τὰ ἐν τῇ αὐτῇ κατηγορίᾳ ζητεῖν, πῶς πολλαὶ οὐσίαι ἢ πολλὰ ποιά, ἀλλὰ πῶς πολλὰ τὰ ὄντα· τὰ μὲν γὰρ οὐσίαι τὰ δὲ πάθη τὰ δὲ πρός τι.

What, then, is the cause of these being many?—Now it is necessary, as we say, to posit for each thing what is that thing potentially. (The author of these views went on to declare what it is that is potentially a "this" and a substance but is not in its own right: namely, the relative—as if he had said "the qualitative." But the relative is neither potentially the One or being, nor the negation of the One or of being; it is one particular kind of being.) And it was far more necessary, as has been said, if he was asking how the things that are are many, not to ask about things in the same category—how there are many substances or many qualities—but how the things that are are many. For some of them are substances, some are affections, and some are relatives.

ἐπὶ μὲν οὖν τῶν ἄλλων κατηγοριῶν ἔχει τινὰ καὶ ἄλλην ἐπίστασιν πῶς πολλά (διὰ γὰρ τὸ μὴ χωριστὰ εἶναι τῷ τὸ ὑποκείμενον πολλὰ γίγνεσθαι καὶ εἶναι ποιά τε πολλὰ [εἶναι] καὶ ποσά· καίτοι δεῖ γέ τινα εἶναι ὕλην ἑκάστῳ γένει, πλὴν χωριστὴν ἀδύνατον τῶν οὐσιῶν)· ἀλλ' ἐπὶ τῶν τόδε τι ἔχει τινὰ λόγον πῶς πολλὰ τὸ τόδε τι, εἰ μή τι ἔσται καὶ τόδε τι καὶ φύσις τις τοιαύτη· αὕτη δέ ἐστιν ἐκεῖθεν μᾶλλον ἡ ἀπορία, πῶς πολλαὶ ἐνεργείᾳ οὐσίαι ἀλλ' οὐ μία. ἀλλὰ μὴν καὶ εἰ μὴ ταὐτόν ἐστι τὸ τόδε καὶ τὸ ποσόν, οὐ λέγεται πῶς καὶ διὰ τί πολλὰ τὰ ὄντα, ἀλλὰ πῶς ποσὰ πολλά.

In the other categories, then, there is a further question to consider about how they are many. Because they are not separable, it is by the underlying subject's coming to be and being many that qualities and quantities are many—though there must be some matter for each genus, only it cannot be separable from substances. But in the case of individual "thises," there is some account of how the "this" is many, unless a thing is to be both a "this" and a nature of that general kind. The puzzle that arises from these facts is rather this: how there are actually many substances and not one. And further, even if the "this" and the quant-

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itative are not the same, we are not told how and why the things that are are many, but only how quantities are many.

ὁ γὰρ ἀριθμὸς πᾶς ποσόν τι σημαίνει, καὶ ἡ μονάς, εἰ μὴ μέτρον καὶ τὸ κατὰ τὸ ποσὸν ἀδιαίρετον. εἰ μὲν οὖν ἕτερον τὸ ποσὸν καὶ τὸ τί ἐστιν, οὐ λέγεται τὸ τί ἐστιν ἐκ τίνος οὐδὲ πῶς πολλά· [1090a] εἰ δὲ ταὐτό, πολλὰς ὑπομένει ὁ λέγων ἐναντιώσεις.—ἐπιστήσειε δ' ἄν τις τὴν σκέψιν καὶ περὶ τῶν ἀριθμῶν πόθεν δεῖ λαβεῖν τὴν πίστιν ὡς εἰσίν.

For every number signifies a quantity, and so does the unit, unless it means a measure and what is indivisible in respect of quantity. If, then, the quantitative and the what-it-is are different, we are not told what the what-it-is comes from or how it is many; [1090a] and if they are the same, whoever says so has to face many inconsistencies.—One might also turn one's inquiry to numbers and ask where we should get our conviction that they exist.

1090a τῷ μὲν γὰρ ἰδέας τιθεμένῳ παρέχονταί τιν' αἰτίαν τοῖς οὖσιν, εἴπερ ἕκαστος τῶν ἀριθμῶν ἰδέα τις ἡ δ' ἰδέα τοῖς ἄλλοις αἰτία τοῦ εἶναι ὅν δή ποτε τρόπον (ἔστω γὰρ ὑποκείμενον αὐτοῖς τοῦτο)· τῷ δὲ τοῦτον μὲν τὸν τρόπον οὐκ οἰομένῳ διὰ τὸ τὰς ἐνούσας δυσχερείας ὁρᾶν περὶ τὰς ἰδέας ὥστε διά γε ταῦτα μὴ ποιεῖν ἀριθμούς, ποιοῦντι δὲ ἀριθμὸν τὸν μαθηματικόν, πόθεν τε χρὴ πιστεῦσαι ὡς ἔστι τοιοῦτος ἀριθμός, καὶ τί τοῖς ἄλλοις χρήσιμος; οὐθενὸς γὰρ οὔτε φησὶν ὁ λέγων αὐτὸν εἶναι, ἀλλ' ὡς αὐτήν τινα λέγει καθ' αὑτὴν φύσιν οὖσαν, οὔτε φαίνεται ὢν αἴτιος· τὰ γὰρ θεωρήματα τῶν ἀριθμητικῶν πάντα καὶ κατὰ τῶν αἰσθητῶν ὑπάρξει, καθάπερ ἐλέχθη.

For someone who posits Forms, numbers supply a kind of cause for the things that are, if each number is a Form and the Form is the cause of being for other things in one way or another (let this assumption be granted them). But take someone who does not think this way, because he sees the difficulties inherent in the Forms and so does not, on their account at least, make numbers exist, but who does posit mathematical number. Where should one get the conviction that such number exists, and what use is it to other things? Its proponent does not say it is the number of anything; he speaks of it as a nature existing itself by itself. Nor does it appear to be a cause of anything. For all the theorems of arithmetic will hold of perceptible things too, as has been said.

WHY BELIEVE NUMBERS EXIST?

Neither Platonists nor those who posit only mathematical number can justify separate numbers.

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οἱ μὲν οὖν τιθέμενοι τὰς ἰδέας εἶναι, καὶ ἀριθμοὺς αὐτὰς εἶναι, ⟨τῷ⟩ κατὰ τὴν ἔκθεσιν ἑκάστου παρὰ τὰ πολλὰ λαμβάνειν [τὸ] ἕν τι ἕκαστον πειρῶνταί γε λέγειν πως διὰ τί ἔστιν, οὐ μὴν ἀλλὰ ἐπεὶ οὔτε ἀναγκαῖα οὔτε δυνατὰ ταῦτα, οὐδὲ τὸν ἀριθμὸν διά γε ταῦτα εἶναι λεκτέον· οἱ δὲ Πυθαγόρειοι διὰ τὸ ὁρᾶν πολλὰ τῶν ἀριθμῶν πάθη ὑπάρχοντα τοῖς αἰσθητοῖς σώμασιν, εἶναι μὲν ἀριθμοὺς ἐποίησαν τὰ ὄντα, οὐ χωριστοὺς δέ, ἀλλ' ἐξ ἀριθμῶν τὰ ὄντα· διὰ τί δέ; ὅτι τὰ πάθη τὰ τῶν ἀριθμῶν ἐν ἁρμονίᾳ ὑπάρχει καὶ ἐν τῷ οὐρανῷ καὶ ἐν πολλοῖς ἄλλοις. τοῖς δὲ τὸν μαθηματικὸν μόνον λέγουσιν εἶναι ἀριθμὸν οὐθὲν τοιοῦτον ἐνδέχεται λέγειν κατὰ τὰς ὑποθέσεις, ἀλλ' ὅτι οὐκ ἔσονται αὐτῶν αἱ ἐπιστῆμαι ἐλέγετο.

Those, then, who hold that the Forms exist, and that they are numbers, do at least try to say somehow why they exist, by "setting out" each thing apart from the many and taking each as some one thing. But since these arguments are neither necessary nor even possible, one should not say, on their account at least, that number exists. The Pythagoreans, seeing many attributes of numbers belonging to perceptible bodies, made the things that are numbers—not separate numbers, but things made out of numbers. And why? Because the attributes of numbers are present in a musical scale, in the heavens, and in many other things. But those who say that only mathematical number exists can say nothing of this sort on their hypo-

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theses; what they used to say instead was that the sciences would not be about perceptible things.

ἡμεῖς δέ φαμεν εἶναι, καθάπερ εἴπομεν πρότερον. καὶ δῆλον ὅτι οὐ κεχώρισται τὰ μαθηματικά· οὐ γὰρ ἂν κεχωρισμένων τὰ πάθη ὑπῆρχεν ἐν τοῖς σώμασιν. οἱ μὲν οὖν Πυθαγόρειοι κατὰ μὲν τὸ τοιοῦτον οὐθενὶ ἔνοχοί εἰσιν, κατὰ μέντοι τὸ ποιεῖν ἐξ ἀριθμῶν τὰ φυσικὰ σώματα, ἐκ μὴ ἐχόντων βάρος μηδὲ κουφότητα ἔχοντα κουφότητα καὶ βάρος, ἐοίκασι περὶ ἄλλου οὐρανοῦ λέγειν καὶ σωμάτων ἀλλ' οὐ τῶν αἰσθητῶν· οἱ δὲ χωριστὸν ποιοῦντες, ὅτι ἐπὶ τῶν αἰσθητῶν οὐκ ἔσται τὰ ἀξιώματα, ἀληθῆ δὲ τὰ λεγόμενα καὶ σαίνει τὴν ψυχήν, εἶναί τε ὑπολαμβάνουσι καὶ χωριστὰ εἶναι· ὁμοίως δὲ καὶ τὰ μεγέθη τὰ μαθηματικά.

We, however, say that the sciences are about these things, as we said before. And it is clear that mathematical objects are not separate; for if they were separate, their attributes would not be present in bodies. Now on this score the Pythagoreans are open to no objection. But in making natural bodies out of numbers—things that have lightness and weight out of things that have neither weight nor lightness—they seem to be talking about another heaven and other bodies, not perceptible ones. Those who make number separate assume both that it exists and that it is separate, because the axioms will not hold of perceptible things, while the statements of mathematics are true and charm the soul; and the same goes for mathematical magnitudes.

1090b δῆλον οὖν ὅτι καὶ ὁ ἐναντιούμενος λόγος τἀναντία ἐρεῖ, καὶ ὃ ἄρτι ἠπορήθη λυτέον τοῖς οὕτω λέγουσι, διὰ τί οὐδαμῶς ἐν τοῖς αἰσθητοῖς ὑπαρχόντων τὰ πάθη ὑπάρχει αὐτῶν ἐν τοῖς αἰσθητοῖς. εἰσὶ δέ τινες οἳ ἐκ τοῦ πέρατα εἶναι καὶ ἔσχατα τὴν στιγμὴν μὲν γραμμῆς, ταύτην δ' ἐπιπέδου, τοῦτο δὲ τοῦ στερεοῦ, οἴονται εἶναι ἀνάγκην τοιαύτας φύσεις εἶναι. δεῖ δὴ καὶ τοῦτον ὁρᾶν τὸν λόγον, μὴ λίαν ᾖ μαλακός.

Clearly, then, the opposing argument will say the opposite, and those who hold this view must solve the puzzle just raised: why, if mathematical objects are in no way present in perceptible things, their attributes are present in perceptible things. There are some who think there must be natures of this kind because the point is the limit and extremity of the line, the line of the plane, and the plane of the solid. We must look at this argument too, and see whether it is not too feeble.

οὔτε γὰρ οὐσίαι εἰσὶ τὰ ἔσχατα ἀλλὰ μᾶλλον πάντα ταῦτα πέρατα (ἐπεὶ καὶ τῆς βαδίσεως καὶ ὅλως κινήσεως ἔστι τι πέρας· τοῦτ' οὖν ἔσται τόδε τι καὶ οὐσία τις· ἀλλ' ἄτοπον)· —οὐ μὴν ἀλλὰ εἰ καὶ εἰσί, τῶνδε τῶν αἰσθητῶν ἔσονται πάντα (ἐπὶ τούτων γὰρ ὁ λόγος εἴρηκεν)· διὰ τί οὖν χωριστὰ ἔσται;—ἔτι δὲ ἐπιζητήσειεν ἄν τις μὴ λίαν εὐχερὴς ὢν περὶ μὲν τοῦ ἀριθμοῦ παντὸς καὶ τῶν μαθηματικῶν τὸ μηθὲν συμβάλλεσθαι ἀλλήλοις τὰ πρότερα τοῖς ὕστερον (μὴ ὄντος γὰρ τοῦ ἀριθμοῦ οὐθὲν ἧττον τὰ μεγέθη ἔσται τοῖς τὰ μαθηματικὰ μόνον εἶναι φαμένοις, καὶ τούτων μὴ ὄντων ἡ ψυχὴ καὶ τὰ σώματα τὰ αἰσθητά·

For extremities are not substances; rather, all these things are limits. (Even walking, and motion in general, has some limit; so this limit would be a "this" and a substance—which is absurd.)—And even if they are substances, they will all be substances of these perceptible things here, since that is what the argument was about. Why, then, would they be separable?—Further, someone not too easily satisfied might press the question, about all number and mathematical objects, why the earlier contribute nothing to the later. (For if number did not exist, magnitudes would exist no less, for those who say that only mathematical objects exist; and if magnitudes did not exist, soul and perceptible bodies would.[1]

οὐκ ἔοικε δ' ἡ φύσις ἐπεισοδιώδης οὖσα ἐκ τῶν φαινομένων, ὥσπερ μοχθηρὰ τραγῳδία)· τοῖς δὲ τὰς ἰδέας τιθεμένοις τοῦτο μὲν ἐκφεύγει—ποιοῦσι γὰρ τὰ μεγέθη ἐκ τῆς ὕλης καὶ ἀριθμοῦ, ἐκ μὲν τῆς δυάδος τὰ μήκη, ἐκ

But nature, judging from the phenomena, does not seem to be a string of disconnected episodes, like a bad tragedy.) Those who posit the Forms escape this problem, since they make magnitudes out of

1 Those who say only mathematical objects exist are Speusippus and his followers.

GREEK

τριάδος δ' ἴσως τὰ ἐπίπεδα, ἐκ δὲ τῆς τετράδος τὰ στερεὰ ἢ καὶ ἐξ ἄλλων ἀριθμῶν· διαφέρει γὰρ οὐθέν—, ἀλλὰ ταῦτά γε πότερον ἰδέαι ἔσονται, ἢ τίς ὁ τρόπος αὐτῶν, καὶ τί συμβάλλονται τοῖς οὖσιν;

οὐθὲν γάρ, ὥσπερ οὐδὲ τὰ μαθηματικά, οὐδὲ ταῦτα συμβάλλεται. ἀλλὰ μὴν οὐδ' ὑπάρχει γε κατ' αὐτῶν οὐθὲν θεώρημα, ἐὰν μή τις βούληται κινεῖν τὰ μαθηματικὰ καὶ ποιεῖν ἰδίας τινὰς δόξας. ἔστι δ' οὐ χαλεπὸν ὁποιασοῦν ὑποθέσεις λαμβάνοντας μακροποιεῖν καὶ συνείρειν. οὗτοι μὲν οὖν ταύτῃ προσγλιχόμενοι ταῖς ἰδέαις τὰ μαθηματικὰ διαμαρτάνουσιν· οἱ δὲ πρῶτοι δύο τοὺς ἀριθμοὺς ποιήσαντες, τόν τε τῶν εἰδῶν καὶ τὸν μαθηματικόν, οὔτ' εἰρήκασιν οὔτ' ἔχοιεν ἂν εἰπεῖν πῶς καὶ ἐκ τίνος ἔσται ὁ μαθηματικός. ποιοῦσι γὰρ αὐτὸν μεταξὺ τοῦ εἰδητικοῦ καὶ τοῦ αἰσθητοῦ.

εἰ μὲν γὰρ ἐκ τοῦ μεγάλου καὶ μικροῦ, ὁ αὐτὸς ἐκείνῳ ἔσται τῷ τῶν ἰδεῶν (ἐξ ἄλλου δέ τινος μικροῦ καὶ μεγάλου τὰ [γὰρ] μεγέθη ποιεῖ)· 1091a εἰ δ' ἕτερόν τι ἐρεῖ, πλείω τὰ στοιχεῖα ἐρεῖ· καὶ εἰ ἕν τι ἑκατέρου ἡ ἀρχή, κοινόν τι ἐπὶ τούτων ἔσται τὸ ἕν, ζητητέον τε πῶς καὶ ταῦτα πολλὰ τὸ ἓν καὶ ἅμα τὸν ἀριθμὸν γενέσθαι ἄλλως ἢ ἐξ ἑνὸς καὶ δυάδος ἀορίστου ἀδύνατον κατ' ἐκεῖνον. πάντα δὴ ταῦτα ἄλογα, καὶ μάχεται καὶ αὐτὰ ἑαυτοῖς καὶ τοῖς εὐλόγοις, καὶ ἔοικεν ἐν αὐτοῖς εἶναι ὁ Σιμωνίδου μακρὸς λόγος· γίγνεται γὰρ ὁ μακρὸς λόγος ὥσπερ ὁ τῶν δούλων ὅταν μηθὲν ὑγιὲς λέγωσιν.

1091a φαίνεται δὲ καὶ αὐτὰ τὰ στοιχεῖα τὸ μέγα καὶ τὸ μικρὸν βοᾶν ὡς ἑλκόμενα· οὐ δύναται γὰρ οὐδαμῶς γεννῆσαι τὸν ἀριθμὸν ἀλλ' ἢ τὸν ἀφ' ἑνὸς διπλασιαζόμενον.—ἄτοπον δὲ καὶ γένεσιν ποιεῖν ἀϊδίων ὄντων, μᾶλλον δ' ἔν τι τῶν ἀδυνάτων. οἱ μὲν οὖν Πυθαγόρειοι πότερον οὐ ποιοῦσιν ἢ ποιοῦσι γένεσιν οὐδὲν δεῖ διστάζειν· φανερῶς γὰρ λέγουσιν ὡς τοῦ ἑνὸς συσταθέντος, εἴτ' ἐξ ἐπιπέδων εἴτ' ἐκ χροιᾶς εἴτ' ἐκ σπέρματος εἴτ' ἐξ ὧν ἀποροῦσιν εἰπεῖν, εὐθὺς τὸ ἔγγιστα τοῦ ἀπείρου ὅτι εἴλκετο καὶ ἐπεραίνετο ὑπὸ τοῦ πέρατος. ἀλλ' ἐπειδὴ κοσμοποιοῦσι καὶ φυσικῶς βούλονται λέγειν, δίκαιον αὐτοὺς ἐξετάζειν τι περὶ φύσεως, ἐκ δὲ τῆς νῦν ἀφεῖναι μεθόδου· τὰς γὰρ ἐν τοῖς

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matter and number: lines out of the two, planes presumably out of the three, solids out of the four —or out of other numbers, since it makes no difference. But will these magnitudes be Forms? If not, what is their mode of being, and what do they contribute to the things that are?

They contribute nothing, just as mathematical objects contribute nothing. What's more, not a single theorem holds of them, unless one is willing to tamper with mathematics and invent some private doctrines of one's own. It is not hard to take any hypotheses you like and spin out a long chain of consequences. These thinkers, then, go wrong in this way, by trying to glue mathematical objects onto the Forms. And those who first made two kinds of number, the number of the Forms and mathematical number, have not said, and could not say, how mathematical number will come to be, or out of what. For they make it intermediate between form-number and perceptible number.

If it is made from the great and small, it will be the same as the number of the Forms (for magnitudes he makes from some other small and great). 1091a If he names some other element, he will be making the elements more numerous. And if the principle of each kind is some one thing, the One will be something common to them, and we must ask how the One is these many things as well—while at the same time, on his view, number cannot come to be except from the One and an indefinite dyad. All this is irrational; it conflicts both with itself and with what is reasonable, and it seems to embody Simonides' "long story": for the long story comes about, like the talk of slaves, when people have nothing sound to say.[2]

The very elements, the great and the small, seem to cry out as if they were being dragged along; for they cannot possibly generate any number except the one got by doubling from one.—It is also absurd to posit a generation of things that are eternal; or rather, it is one of the impossible things. Whether the Pythagoreans posit generation or not, there is no need to hesitate: they say plainly that when the One had been constructed—whether out of planes, or of surface, or of seed, or of things they are at a loss to name—immediately the nearest part of the unlimited began to be drawn in

2 Simonides' "long story" seems to have been a proverbial rambling excuse.

GREEK

ἀκινήτοις ζητοῦμεν ἀρχάς, ὥστε καὶ τῶν ἀριθμῶν τῶν τοιούτων ἐπισκεπτέον τὴν γένεσιν.

ENGLISH

and limited by the limit. But since they are constructing a world and want to speak in terms of nature, it is fair to examine them to some extent in an inquiry about nature, but to leave them out of the present one. For we are seeking the principles among unchangeable things, so it is the generation of numbers of that kind that we must consider.

THE PRINCIPLES AND THE GOOD

Is the good a first principle or something that appears later, as some thinkers claim?

GREEK

τοῦ μὲν οὖν περιττοῦ γένεσιν οὔ φασιν, ὡς δηλονότι τοῦ ἀρτίου οὔσης γενέσεως· τὸν δ' ἄρτιον πρῶτον ἐξ ἀνίσων τινὲς κατασκευάζουσι τοῦ μεγάλου καὶ μικροῦ ἰσασθέντων. ἀνάγκη οὖν πρότερον ὑπάρχειν τὴν ἀνισότητα αὐτοῖς τοῦ ἰσασθῆναι· εἰ δ' ἀεὶ ἦσαν ἰσασμένα, οὐκ ἂν ἦσαν ἄνισα πρότερον (τοῦ γὰρ ἀεὶ οὐκ ἔστι πρότερον οὐθέν), ὥστε φανερὸν ὅτι οὐ τοῦ θεωρῆσαι ἕνεκεν ποιοῦσι τὴν γένεσιν τῶν ἀριθμῶν.—ἔχει δ' ἀπορίαν καὶ εὐπορήσαντι ἐπιτίμησιν πῶς ἔχει πρὸς τὸ ἀγαθὸν καὶ τὸ καλὸν τὰ στοιχεῖα καὶ αἱ ἀρχαί· ἀπορίαν μὲν ταύτην, πότερόν ἐστί τι ἐκείνων οἷον βουλόμεθα λέγειν αὐτὸ τὸ ἀγαθὸν καὶ τὸ ἄριστον, ἢ οὔ, ἀλλ' ὑστερογενῆ.

παρὰ μὲν γὰρ τῶν θεολόγων ἔοικεν ὁμολογεῖσθαι τῶν νῦν τισίν, οἳ οὔ φασιν, ἀλλὰ προελθούσης τῆς τῶν ὄντων φύσεως καὶ τὸ ἀγαθὸν καὶ τὸ καλὸν ἐμφαίνεσθαι (τοῦτο δὲ ποιοῦσιν εὐλαβούμενοι ἀληθινὴν δυσχέρειαν ἣ συμβαίνει τοῖς λέγουσιν, ὥσπερ ἔνιοι, τὸ ἓν ἀρχήν· [1091b] ἔστι δ' ἡ δυσχέρεια οὐ διὰ τὸ τῇ ἀρχῇ τὸ εὖ ἀποδιδόναι ὡς ὑπάρχον, ἀλλὰ διὰ τὸ τὸ ἓν ἀρχὴν καὶ ἀρχὴν ὡς στοιχεῖον καὶ τὸν ἀριθμὸν ἐκ τοῦ ἑνός),—οἱ δὲ ποιηταὶ οἱ ἀρχαῖοι ταύτῃ ὁμοίως, ᾗ βασιλεύειν καὶ ἄρχειν φασὶν οὐ τοὺς πρώτους, οἷον νύκτα καὶ οὐρανὸν ἢ χάος ἢ ὠκεανόν, ἀλλὰ τὸν Δία· οὐ μὴν ἀλλὰ τούτοις μὲν διὰ τὸ μεταβάλλειν τοὺς ἄρχοντας τῶν ὄντων συμβαίνει τοιαῦτα λέγειν, ἐπεὶ οἵ γε μεμιγμένοι αὐτῶν [καὶ] τῷ μὴ μυθικῶς πάντα λέγειν, οἷον Φερεκύδης καὶ ἕτεροί τινες, τὸ γεννῆσαν πρῶτον ἄριστον τιθέασι, καὶ οἱ Μάγοι, καὶ τῶν ὑστέρων δὲ σοφῶν οἷον Ἐμπεδοκλῆς τε καὶ Ἀναξαγόρας, ὁ μὲν τὴν φιλίαν στοιχεῖον ὁ δὲ τὸν νοῦν ἀρχὴν ποιήσας.

ENGLISH

Now they say there is no generation of the odd, clearly implying that there is generation of the even. Some construct the first even number out of unequals, the great and the small, when these are equalized. So inequality must belong to them before they are equalized. But if they had always been equalized, they would not have been unequal before, since there is nothing before what always is. So it is evident that they do not posit the generation of numbers merely for the sake of exposition.—There is a puzzle, and a reproach for anyone who finds it easy, about how the elements and principles are related to the good and the beautiful. The puzzle is this: is any of them the sort of thing we mean by the good itself and the best, or not—are these later in origin?

The theologians seem to agree with some thinkers of our own day, who say no: rather, the good and the beautiful appear only once the nature of things has advanced. (They do this to guard against a genuine difficulty facing those who say, as some do, that the One is a principle. [1091b] The difficulty arises not from ascribing goodness to the principle as belonging to it, but from making the One a principle—and a principle in the sense of an element—and generating number from the One.) The ancient poets agree in this respect, in that they say it is not the first beings—such as Night and Heaven, or Chaos, or Ocean—who reign and rule, but Zeus. They are led to say such things, however, because in their stories the rulers of the world change. For those of them who are mixed, in that they do not say everything in the form of myth—Pherecydes, for instance, and some others—make the first begetter the best; so do the Magi; and so do some of the later wise men, such as

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Empedocles and Anaxagoras, the one making Love an element, the other making intellect a principle.[3]

1091b τῶν δὲ τὰς ἀκινήτους οὐσίας εἶναι λεγόντων οἱ μέν φασιν αὐτὸ τὸ ἓν τὸ ἀγαθὸν αὐτὸ εἶναι· οὐσίαν μέντοι τὸ ἓν αὐτοῦ ᾠοντο εἶναι μάλιστα.—ἡ μὲν οὖν ἀπορία αὕτη, ποτέρως δεῖ λέγειν· θαυμαστὸν δ' εἰ τῷ πρώτῳ καὶ ἀϊδίῳ καὶ αὐταρκεστάτῳ τοῦτ' αὐτὸ πρῶτον οὐχ ὡς ἀγαθὸν ὑπάρχει, τὸ αὔταρκες καὶ ἡ σωτηρία. ἀλλὰ μὴν οὐ δι' ἄλλο τι ἄφθαρτον ἢ διότι εὖ ἔχει, οὐδ' αὔταρκες, ὥστε τὸ μὲν φάναι τὴν ἀρχὴν τοιαύτην εἶναι εὔλογον ἀληθὲς εἶναι, τὸ μέντοι ταύτην εἶναι τὸ ἕν, ἢ εἰ μὴ τοῦτο, στοιχεῖόν γε καὶ στοιχεῖον ἀριθμῶν, ἀδύνατον.

Of those who say there are unchangeable substances, some say that the One itself is the good itself; but they thought its substance lay above all in its being one.—This, then, is the puzzle: which of the two ways we should speak. It would be surprising if the first, eternal, and most self-sufficient thing did not possess this very attribute—self-sufficiency and self-preservation—primarily as a good. Yet it is imperishable, and self-sufficient, for no other reason than that it is in a good condition. So to say that the principle is of this kind may reasonably be held to be true; but that this principle should be the One or, if not that, an element —and an element of numbers—is impossible.

συμβαίνει γὰρ πολλὴ δυσχέρεια—ἣν ἔνιοι φεύγοντες ἀπειρήκασιν, οἱ τὸ ἓν μὲν ὁμολογοῦντες ἀρχὴν εἶναι πρώτην καὶ στοιχεῖον, τοῦ ἀριθμοῦ δὲ τοῦ μαθηματικοῦ — ἅπασαι γὰρ αἱ μονάδες γίγνονται ὅπερ ἀγαθόν τι, καὶ πολλή τις εὐπορία ἀγαθῶν. ἔτι εἰ τὰ εἴδη ἀριθμοί, τὰ εἴδη πάντα ὅπερ ἀγαθόν τι· ἀλλὰ μὴν ὅτου βούλεται τιθέτω τις εἶναι ἰδέας· εἰ μὲν γὰρ τῶν ἀγαθῶν μόνον, οὐκ ἔσονται οὐσίαι αἱ ἰδέαι, εἰ δὲ καὶ τῶν οὐσιῶν, πάντα τὰ ζῷα καὶ τὰ φυτὰ ἀγαθὰ καὶ τὰ μετέχοντα.

For many difficulties follow—to escape them some have given up the view, namely those who agree that the One is a first principle and element, but of mathematical number. For all the units turn out to be precisely some kind of good, and there is a great abundance of goods. Further, if the Forms are numbers, all the Forms are precisely some kind of good. But let someone posit Forms of whatever he likes. If they are Forms of goods only, the Forms will not be substances; if of substances too, all animals and plants will be goods, and so will the things that participate in the Forms.

ταῦτά τε δὴ συμβαίνει ἄτοπα, καὶ τὸ ἐναντίον στοιχεῖον, εἴτε πλῆθος ὂν εἴτε τὸ ἄνισον καὶ μέγα καὶ μικρόν, τὸ κακὸν αὐτό (διόπερ ὁ μὲν ἔφευγε τὸ ἀγαθὸν προσάπτειν τῷ ἑνὶ ὡς ἀναγκαῖον ὄν, ἐπειδὴ ἐξ ἐναντίων ἡ γένεσις, τὸ κακὸν τὴν τοῦ πλήθους φύσιν εἶναι· οἱ δὲ λέγουσι τὸ ἄνισον τὴν τοῦ κακοῦ φύσιν)· συμβαίνει δὴ πάντα τὰ ὄντα μετέχειν τοῦ κακοῦ ἔξω ἑνὸς αὐτοῦ τοῦ ἑνός, καὶ μᾶλλον ἀκράτου μετέχειν τοὺς ἀριθμοὺς ἢ τὰ μεγέθη, [1092a] καὶ τὸ κακὸν τοῦ ἀγαθοῦ χώραν εἶναι, καὶ μετέχειν καὶ ὀρέγεσθαι τοῦ φθαρτικοῦ· φθαρτικὸν γὰρ τοῦ ἐναντίου τὸ ἐναντίον. καὶ εἰ ὥσπερ ἐλέγομεν ὅτι ἡ ὕλη ἐστὶ τὸ δυνάμει ἕκαστον, οἷον πυρὸς τοῦ ἐνεργείᾳ τὸ δυνάμει πῦρ, τὸ κακὸν ἔσται αὐτὸ τὸ δυνάμει ἀγαθόν.

These absurd consequences follow, and also that the contrary element—whether it is plurality or the unequal, the great and small—is the bad itself. (That is why one thinker avoided attaching the good to the One: since generation is from contraries, it would be necessary for the bad to be the nature of plurality. Others say that the unequal is the nature of the bad.) It follows, then, that all the things that are partake of the bad except one thing, the One itself; that numbers partake of it in a purer form than magnitudes do; [1092a] that the bad is the space in which the good is found; and that the good partakes of and desires what destroys it, for a contrary is destructive of its contrary. And if, as we were saying, matter is what is each thing potentially—as the matter of actual fire is what is po-

3 Pherecydes of Syros (sixth century BC) wrote an early prose account of the origins of the world; the Magi were the priests of Persia.

	GREEK	ENGLISH
		tentially fire—the bad will be the good itself potentially.[4]
1092a	ταῦτα δὴ πάντα συμβαίνει, τὸ μὲν ὅτι ἀρχὴν πᾶσαν στοιχεῖον ποιοῦσι, τὸ δ' ὅτι τἀναντία ἀρχάς, τὸ δ' ὅτι τὸ ἓν ἀρχήν, τὸ δ' ὅτι τοὺς ἀριθμοὺς τὰς πρώτας οὐσίας καὶ χωριστὰ καὶ εἴδη.	All these consequences follow partly because they make every principle an element, partly because they make contraries principles, partly because they make the One a principle, and partly because they make numbers the first substances, separable, and Forms.

HOW COULD NUMBER COME FROM PRINCIPLES?

Number cannot come from its principles by mixture, composition, or generation from a seed.

GREEK	ENGLISH
εἰ οὖν καὶ τὸ μὴ τιθέναι τὸ ἀγαθὸν ἐν ταῖς ἀρχαῖς καὶ τὸ τιθέναι οὕτως ἀδύνατον, δῆλον ὅτι αἱ ἀρχαὶ οὐκ ὀρθῶς ἀποδίδονται οὐδὲ αἱ πρῶται οὐσίαι. οὐκ ὀρθῶς δ' ὑπολαμβάνει οὐδ' εἴ τις παρεικάζει τὰς τοῦ ὅλου ἀρχὰς τῇ τῶν ζῴων καὶ φυτῶν, ὅτι ἐξ ἀορίστων ἀτελῶν τε ἀεὶ τὰ τελειότερα, διὸ καὶ ἐπὶ τῶν πρώτων οὕτως ἔχειν φησίν, ὥστε μηδὲ ὄν τι εἶναι τὸ ἓν αὐτό. εἰσὶ γὰρ καὶ ἐνταῦθα τέλειαι αἱ ἀρχαὶ ἐξ ὧν ταῦτα· ἄνθρωπος γὰρ ἄνθρωπον γεννᾷ, καὶ οὐκ ἔστι τὸ σπέρμα πρῶτον.	If, then, it is impossible both not to put the good among the principles and to put it there in this way, it is clear that the principles are not correctly given, nor are the first substances. Nor is anyone right to suppose so if he likens the principles of the universe to the principle of animals and plants, on the ground that the more complete always comes from what is indefinite and incomplete—which is why he says the same holds of the first things, so that the One itself is not even a being. For even here, among animals and plants, the principles from which they come are complete: a human being begets a human being, and the seed is not first.
ἄτοπον δὲ καὶ τὸ τόπον ἅμα τοῖς στερεοῖς τοῖς μαθηματικοῖς ποιῆσαι (ὁ μὲν γὰρ τόπος τῶν καθ' ἕκαστον ἴδιος, διὸ χωριστὰ τόπῳ, τὰ δὲ μαθηματικὰ οὐ πού), καὶ τὸ εἰπεῖν μὲν ὅτι ποὺ ἔσται, τί δέ ἐστιν ὁ τόπος μή.—ἔδει δὲ τοὺς λέγοντας ἐκ στοιχείων εἶναι τὰ ὄντα καὶ τῶν ὄντων τὰ πρῶτα τοὺς ἀριθμούς, διελομένους πῶς ἄλλο ἐξ ἄλλου ἐστίν, οὕτω λέγειν τίνα τρόπον ὁ ἀριθμός ἐστιν ἐκ τῶν ἀρχῶν. πότερον μίξει; ἀλλ' οὔτε πᾶν μικτόν, τό τε γιγνόμενον ἕτερον, οὐκ ἔσται τε χωριστὸν τὸ ἓν οὐδ' ἑτέρα φύσις· οἱ δὲ βούλονται. ἀλλὰ συνθέσει, ὥσπερ συλλαβή; ἀλλὰ θέσιν τε ἀνάγκη ὑπάρχειν, καὶ χωρὶς ὁ νοῶν νοήσει τὸ ἓν καὶ τὸ πλῆθος. τοῦτ' οὖν ἔσται ὁ ἀριθμός, μονὰς καὶ πλῆθος, ἢ τὸ ἓν καὶ ἄνισον.	It is absurd, too, to make place come into being together with the mathematical solids (for place is peculiar to individual things, which is why they are separate in place, whereas mathematical objects are not anywhere), and to say that they will be somewhere without saying what place is.—Those who say that the things that are come from elements, and that the first of the things that are are numbers, ought to have distinguished the ways in which one thing comes from another, and then said in which way number comes from its principles. Is it by mixture? But not everything can be mixed, and what comes to be is different from its ingredients; besides, the One will not be separate or a distinct nature, as they want it to be. By composition, then, like a syllable? But then there must be position, and whoever thinks of the One and plurality will think of them separately. Number, then, will be this: a unit plus plurality, or the One plus the unequal.

4 The "one thinker" is probably Speusippus; the view that the unequal is the bad is Plato's.

GREEK

καὶ ἐπεὶ τὸ ἐκ τινῶν εἶναι ἔστι μὲν ὡς ἐνυπαρχόντων ἔστι δὲ ὡς οὔ, ποτέρως ὁ ἀριθμός; οὕτως γὰρ ὡς ἐνυπαρχόντων οὐκ ἔστιν ἀλλ' ἢ ὧν γένεσις ἔστιν. ἀλλ' ὡς ἀπὸ σπέρματος; ἀλλ' οὐχ οἷόν τε τοῦ ἀδιαιρέτου τι ἀπελθεῖν. ἀλλ' ὡς ἐκ τοῦ ἐναντίου μὴ ὑπομένοντος; ἀλλ' ὅσα οὕτως ἔστι, καὶ ἐξ ἄλλου τινός ἐστιν ὑπομένοντος. ἐπεὶ τοίνυν τὸ ἓν ὁ μὲν τῷ πλήθει ὡς ἐναντίον τίθησιν,
1092b ὁ δὲ τῷ ἀνίσῳ, ὡς ἴσῳ τῷ ἑνὶ χρώμενος, ὡς ἐξ ἐναντίων εἴη ἂν ὁ ἀριθμός· ἔστιν ἄρα τι ἕτερον ἐξ οὗ ὑπομένοντος καὶ θατέρου ἐστὶν ἢ γέγονεν. ἔτι τί δή ποτε τὰ μὲν ἄλλ' ὅσα ἐξ ἐναντίων ἢ οἷς ἔστιν ἐναντία φθείρεται κἂν ἐκ παντὸς ᾖ, ὁ δὲ ἀριθμὸς οὔ; περὶ τούτου γὰρ οὐθὲν λέγεται.

1092b καίτοι καὶ ἐνυπάρχον καὶ μὴ ἐνυπάρχον φθείρει τὸ ἐναντίον, οἷον τὸ νεῖκος τὸ μῖγμα (καίτοι γε οὐκ ἔδει· οὐ γὰρ ἐκείνῳ γε ἐναντίον).—οὐθὲν δὲ διώρισται οὐδὲ ὁποτέρως οἱ ἀριθμοὶ αἴτιοι τῶν οὐσιῶν καὶ τοῦ εἶναι, πότερον ὡς ὅροι (οἷον αἱ στιγμαὶ τῶν μεγεθῶν, καὶ ὡς Εὔρυτος ἔταττε τίς ἀριθμὸς τίνος, οἷον ὁδὶ μὲν ἀνθρώπου ὁδὶ δὲ ἵππου, ὥσπερ οἱ τοὺς ἀριθμοὺς ἄγοντες εἰς τὰ σχήματα τρίγωνον καὶ τετράγωνον, οὕτως ἀφομοιῶν ταῖς ψήφοις τὰς μορφὰς τῶν φυτῶν), ἢ ὅτι [ὁ] λόγος ἡ συμφωνία ἀριθμῶν, ὁμοίως δὲ καὶ ἄνθρωπος καὶ τῶν ἄλλων ἕκαστον; τὰ δὲ δὴ πάθη πῶς ἀριθμοί, τὸ λευκὸν καὶ γλυκὺ καὶ τὸ θερμόν; ὅτι δὲ οὐχ οἱ ἀριθμοὶ οὐσία οὐδὲ τῆς μορφῆς αἴτιοι, δῆλον· ὁ γὰρ λόγος ἡ οὐσία, ὁ δ' ἀριθμὸς ὕλη.

οἷον σαρκὸς ἢ ὀστοῦ ἀριθμὸς ἡ οὐσία οὕτω, τρία πυρὸς γῆς δὲ δύο· καὶ ἀεὶ ὁ ἀριθμὸς ὃς ἂν ᾖ τινῶν ἐστιν, ἢ πύρινος ἢ γήϊνος ἢ μοναδικός, ἀλλ' ἡ οὐσία τὸ τοσόνδ' εἶναι πρὸς τοσόνδε κατὰ τὴν μῖξιν· τοῦτο δ' οὐκέτι ἀριθμὸς ἀλλὰ λόγος μίξεως ἀριθμῶν σωματικῶν ἢ ὁποιωνοῦν. οὔτε οὖν τῷ ποιῆσαι αἴτιος ὁ ἀριθμός, οὔτε ὅλως ὁ ἀριθμὸς οὔτε ὁ μοναδικός, οὔτε ὕλη οὔτε λόγος καὶ εἶδος τῶν πραγμάτων. ἀλλὰ μὴν οὐδ' ὡς τὸ οὗ ἕνεκα.

ENGLISH

And since being from certain things means in one sense being from things present in it and in another sense not, in which way does number come from its principles? Being from things present in it belongs only to things that undergo generation. Is it, then, as from a seed? But nothing can depart from what is indivisible. As from a contrary that does not persist? But whatever is of this kind also comes from something else that does persist. Since, then, one thinker posits the One as contrary to plurality, 1092b and another as contrary to the unequal, treating the One as equal, number would come from contraries; so there is something else, persisting, from which, together with one of the contraries, number is or has come to be. Further, why on earth do all other things that come from contraries or contain contraries perish, even when they are made of the whole of the contrary, while number does not? Nothing is said about this.

Yet a contrary destroys, whether it is present in the thing or not, as Strife destroys the mixture (though it should not have, since it is not the contrary of that).—Nor has it been determined in which way numbers are causes of substances and of being. Is it as boundaries, as points are of magnitudes? This is how Eurytus assigned which number belongs to what—this one to a human, that one to a horse—imitating the shapes of plants with pebbles, like those who arrange numbers into the figures of triangle and square. Or is it because harmony is a ratio of numbers, and so likewise are a human being and every other thing? And the attributes—white, sweet, hot—how are they numbers? That numbers are not substance, nor causes of shape, is clear; for the ratio is the substance, and number is matter.[5]

For example, the substance of flesh or bone is a number only in this way: three parts fire, two parts earth. And a number, whatever it is, is always a number of some things—of fire or of earth or of units. But the substance is the being of so much to so much in the mixture; and this is no longer a number but a ratio of the mixture of numbers, whether corporeal numbers or any other kind. So number—whether number in general or number made of units—is not a cause as producing a thing, nor as the matter, nor as the ratio and

5 Eurytus was a Pythagorean of about 400 BC, a pupil of Philolaus.

GREEK	ENGLISH
	form of things. Nor, indeed, is it a cause as that for the sake of which.

NUMBER MYSTICISM

Coincidences like the sevens show nothing; numbers are not causes of things.

GREEK	ENGLISH
ἀπορήσειε δ' ἄν τις καὶ τί τὸ εὖ ἐστὶ τὸ ἀπὸ τῶν ἀριθμῶν τῷ ἐν ἀριθμῷ εἶναι τὴν μῖξιν, ἢ ἐν εὐλογίστῳ ἢ ἐν περιττῷ. νυνὶ γὰρ οὐθὲν ὑγιεινότερον τρὶς τρία ἂν ᾖ τὸ μελίκρατον κεκραμένον, ἀλλὰ μᾶλλον ὠφελήσειεν ἂν ἐν οὐθενὶ λόγῳ ὂν ὑδαρὲς δὲ ἢ ἐν ἀριθμῷ ἄκρατον ὄν. ἔτι οἱ λόγοι ἐν προσθέσει ἀριθμῶν εἰσὶν οἱ τῶν μίξεων, οὐκ ἐν ἀριθμοῖς, οἷον τρία πρὸς δύο ἀλλ' οὐ τρὶς δύο. τὸ γὰρ αὐτὸ δεῖ γένος εἶναι ἐν ταῖς πολλαπλασιώσεσιν, ὥστε δεῖ μετρεῖσθαι τῷ τε Α τὸν στοῖχον ἐφ' οὗ ΑΒΓ καὶ τῷ Δ τὸν ΔΕΖ· ὥστε τῷ αὐτῷ πάντα. οὔκουν ἔσται πυρὸς ΒΕΓΖ καὶ ὕδατος ἀριθμὸς δὶς τρία.	One might also ask what the good is that comes from numbers through the mixture's being in a number, whether an easily calculated one or an odd one. As things are, honey-water is no healthier for being mixed three times three; it would do more good if it were in no particular ratio but well watered than if it were in a numerical ratio but strong. Further, the ratios of mixtures consist in the adding of numbers, not in numbers as such—for instance, three to two, not three times two. For in multiplications the genus must be the same, so that the series A B C must be measured by A, and the series D E F by D; so all by the same factor. So fire cannot be B E C F and water two times three.
1093a —εἰ δ' ἀνάγκη πάντα ἀριθμοῦ κοινωνεῖν, ἀνάγκη πολλὰ συμβαίνειν τὰ αὐτά, καὶ ἀριθμὸν τὸν αὐτὸν τῷδε καὶ ἄλλῳ. ἆρ' οὖν τοῦτ' αἴτιον καὶ διὰ τοῦτό ἐστι τὸ πρᾶγμα, ἢ ἄδηλον; οἷον ἔστι τις τῶν τοῦ ἡλίου φορῶν ἀριθμός, καὶ πάλιν τῶν τῆς σελήνης, καὶ τῶν ζῴων γε ἑκάστου τοῦ βίου καὶ ἡλικίας· τί οὖν κωλύει ἐνίους μὲν τούτων τετραγώνους εἶναι ἐνίους δὲ κύβους, καὶ ἴσους τοὺς δὲ διπλασίους; οὐθὲν γὰρ κωλύει, ἀλλ' ἀνάγκη ἐν τούτοις στρέφεσθαι, εἰ ἀριθμοῦ πάντα ἐκοινώνει. ἐνεδέχετό τε τὰ διαφέροντα ὑπὸ τὸν αὐτὸν ἀριθμὸν πίπτειν· ὥστ' εἴ τισιν ὁ αὐτὸς ἀριθμὸς συνεβεβήκει, ταὐτὰ ἂν ἦν ἀλλήλοις ἐκεῖνα τὸ αὐτὸ εἶδος ἀριθμοῦ ἔχοντα, οἷον ἥλιος καὶ σελήνη τὰ αὐτά. ἀλλὰ διὰ τί αἴτια ταῦτα;	If everything must share in number, many things must turn out to be the same, and the same number must belong to this thing and to another. Is that, then, the cause, and does the thing exist because of it, or is that unclear? For example, there is a number of the sun's movements, and again of the moon's, and indeed of the life and lifespan of each animal. What prevents some of these from being squares and others cubes, some equal and others double? Nothing does; they must fall within these, if everything shared in number. And different things could fall under the same number; so if the same number belonged to certain things, they would be the same as each other, since they would have the same form of number—the sun and the moon, for instance, would be the same. But why are these numbers causes?
ἑπτὰ μὲν φωνήεντα, ἑπτὰ δὲ χορδαὶ ἡ ἁρμονία, ἑπτὰ δὲ αἱ πλειάδες, ἐν ἑπτὰ δὲ ὀδόντας βάλλει (ἔνιά γε, ἔνια δ' οὔ), ἑπτὰ δὲ οἱ ἐπὶ Θήβας. ἆρ' οὖν ὅτι τοιοσδὶ ὁ ἀριθμὸς πέφυκεν, διὰ τοῦτο ἢ ἐκεῖνοι ἐγένοντο ἑπτὰ ἢ ἡ πλειὰς ἑπτὰ ἀστέρων ἐστίν;	There are seven vowels, the scale has seven strings, the Pleiades are seven, animals lose their teeth at seven (some do, anyway; some don't), and the champions against Thebes were seven. Is it, then, because this number is naturally of such a kind that those champions came to be seven, or that the Pleiad consists of seven stars?[6]
ἢ οἱ μὲν διὰ τὰς πύλας ἢ ἄλλην τινὰ αἰτίαν, τὴν δὲ ἡμεῖς οὕτως ἀριθμοῦμεν, τὴν δὲ ἄρκτον γε δώδεκα, οἱ δὲ	Surely the champions were seven because of the gates or for some other reason, and the Pleiad is

GREEK

πλείους· ἐπεὶ καὶ τὸ ΞΨΖ συμφωνίας φασὶν εἶναι, καὶ ὅτι ἐκεῖναι τρεῖς, καὶ ταῦτα τρία· ὅτι δὲ μυρία ἂν εἴη τοιαῦτα, οὐθὲν μέλει (τῷ γὰρ Γ καὶ Ρ εἴη ἂν ἓν σημεῖον)· εἰ δ' ὅτι διπλάσιον τῶν ἄλλων ἕκαστον, ἄλλο δ' οὔ, αἴτιον δ' ὅτι τριῶν ὄντων τόπων ἓν ἐφ' ἑκάστου ἐπιφέρεται τῷ σίγμα, διὰ τοῦτο τρία μόνον ἐστὶν ἀλλ' οὐχ ὅτι αἱ συμφωνίαι τρεῖς, ἐπεὶ πλείους γε αἱ συμφωνίαι, ἐνταῦθα δ' οὐκέτι δύναται. ὅμοιοι δὴ καὶ οὗτοι τοῖς ἀρχαίοις Ὁμηρικοῖς, οἳ μικρὰς ὁμοιότητας ὁρῶσι μεγάλας δὲ παρορῶσιν.

ENGLISH

seven because that is how we count it, just as we count twelve stars in the Bear, while others count more. They even say that Ξ, Ψ and Z are concords, and that because the concords are three, these letters are three as well. That there could be countless such letters doesn't concern them (for there could be one sign for Γ and Ρ together). But if they say it is because each of these letters is double the others, and no other letter is, the cause is that there are three places in the mouth, and at each one a sound is combined with sigma. That is why there are only three, and not because the concords are three—for there are in fact more concords, whereas here there cannot be more. These people are like the old Homeric scholars, who see small resemblances and overlook great ones.[7]

λέγουσι δέ τινες ὅτι πολλὰ τοιαῦτα, οἷον αἵ τε μέσαι ἡ μὲν ἐννέα ἡ δὲ ὀκτώ, καὶ τὸ ἔπος δεκαεπτά, ἰσάριθμον τούτοις, βαίνεται δ' ἐν μὲν τῷ δεξιῷ ἐννέα συλλαβαῖς, ἐν δὲ τῷ ἀριστερῷ ὀκτώ· 1093b καὶ ὅτι ἴσον τὸ διάστημα ἔν τε τοῖς γράμμασιν ἀπὸ τοῦ Α πρὸς τὸ Ω, καὶ ἀπὸ τοῦ βόμβυκος ἐπὶ τὴν ὀξυτάτην [νεάτην] ἐν αὐλοῖς, ἧς ὁ ἀριθμὸς ἴσος τῇ οὐλομελείᾳ τοῦ οὐρανοῦ. ὁρᾶν δὲ δεῖ μὴ τοιαῦτα οὐθεὶς ἂν ἀπορήσειεν οὔτε λέγειν οὔθ' εὑρίσκειν ἐν τοῖς ἀϊδίοις, ἐπεὶ καὶ ἐν τοῖς φθαρτοῖς.

Some say there are many such correspondences: for instance, that the two middle notes are nine and eight, and that the epic line has seventeen syllables, the same number as these two, scanning with nine syllables in its right half and eight in its left. 1093b And they say that the interval in the alphabet from A to Ω is equal to that from the lowest note to the highest on the pipes, whose number is equal to that of the whole system of the heavens. But we should see that no one would have difficulty stating or finding such correspondences among eternal things, since they can be found even among perishable ones.

1093b ἀλλ' αἱ ἐν τοῖς ἀριθμοῖς φύσεις αἱ ἐπαινούμεναι καὶ τὰ τούτοις ἐναντία καὶ ὅλως τὰ ἐν τοῖς μαθήμασιν, ὡς μὲν λέγουσί τινες καὶ αἴτια ποιοῦσι τῆς φύσεως, ἔοικεν οὑτωσί γε σκοπουμένοις διαφεύγειν (κατ' οὐδένα γὰρ τρόπον τῶν διωρισμένων περὶ τὰς ἀρχὰς οὐδὲν αὐτῶν αἴτιον)· ἔστιν ὡς μέντοι ποιοῦσι φανερὸν ὅτι τὸ εὖ ὑπάρχει καὶ τῆς συστοιχίας ἐστὶ τῆς τοῦ καλοῦ τὸ περιττόν, τὸ εὐθύ, τὸ ἰσάκις ἴσον, αἱ δυνάμεις ἐνίων ἀριθμῶν· ἅμα γὰρ ὧραι καὶ ἀριθμὸς τοιοσδί· καὶ τὰ ἄλλα δὴ ὅσα συνάγουσιν ἐκ τῶν μαθηματικῶν θεωρημάτων πάντα ταύτην ἔχει τὴν δύναμιν.

But the much-praised natures in numbers, and their contraries, and in general mathematical properties, as some describe them when they make them causes of nature, seem to vanish when examined in this way at least; for none of them is a cause in any of the senses distinguished concerning principles. Yet in a way they do make it evident that goodness belongs to numbers, and that the odd, the straight, the equal-times-equal, and the powers of certain numbers belong to the column of the beautiful. For the seasons and a number of this kind go together. And all the other things they gather from mathematical theorems have this same force.

διὸ καὶ ἔοικε συμπτώμασιν· ἔστι γὰρ συμβεβηκότα μέν, ἀλλ' οἰκεῖα ἀλλήλοις πάντα, ἓν δὲ τῷ ἀνάλογον· ἐν ἑκάστῃ γὰρ τοῦ ὄντος κατηγορίᾳ ἐστὶ τὸ ἀνάλογον, ὡς

That is why they look like coincidences. They are accidents, but all appropriate to one another, and one by analogy. For in each category of being

6 The Seven against Thebes were the legendary champions who attacked the city's seven gates.
7 Ξ, Ψ and Z are "double" consonants (ks, ps, sd); the three concords are the fourth, fifth and octave.

GREEK

εὐθὺ ἐν μήκει οὕτως ἐν πλάτει τὸ ὁμαλόν, ἴσως ἐν ἀριθμῷ τὸ περιττόν, ἐν δὲ χροιᾷ τὸ λευκόν.—ἔτι οὐχ οἱ ἐν τοῖς εἴδεσιν ἀριθμοὶ αἴτιοι τῶν ἁρμονικῶν καὶ τῶν τοιούτων (διαφέρουσι γὰρ ἐκεῖνοι ἀλλήλων οἱ ἴσοι εἴδει· καὶ γὰρ αἱ μονάδες)· ὥστε διά γε ταῦτα εἴδη οὐ ποιητέον. τὰ μὲν οὖν συμβαίνοντα ταῦτά τε κἂν ἔτι πλείω συναχθείη· ἔοικε δὲ τεκμήριον εἶναι τὸ πολλὰ κακοπαθεῖν περὶ τὴν γένεσιν αὐτῶν καὶ μηδένα τρόπον δύνασθαι συνεῖραι τοῦ μὴ χωριστὰ εἶναι τὰ μαθηματικὰ τῶν αἰσθητῶν, ὡς ἔνιοι λέγουσι, μηδὲ ταύτας εἶναι τὰς ἀρχάς.

ENGLISH

there is the analogous: as the straight is in length, so the level is in breadth, perhaps the odd in number, and white in color.—Further, the numbers in the Forms are not the causes of harmonic relations and the like; for those numbers, even when equal, differ from one another in form, since their units do too. So on this account at least we should not posit Forms. These, then, are the consequences, and still more could be gathered. The many troubles they have over the generation of numbers, and their inability to connect things up in any way, seem to be evidence that mathematical objects are not separable from perceptible things, as some say, and that these are not the principles.