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Plato's use of the term *stoicheion*. Origin and implications

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Abstract: The aim of this paper is to examine the implications of Plato's use of the term *stoicheion*, since his awareness of *stoicheion*'s polysemy reveals his view of the origin, the complexity and, at the same time, the order of reality. Moreover, his use of *stoicheion* allowed him both to inherit and to detach himself from his predecessors. I begin by presenting the history of the notion of *stoicheion*; then, since one of the meanings of *stoicheion* is 'letter of

the alphabet’, I focus on the *Cratylus*, which contains the first of several passages where Plato employs the alphabet as a paradigm for the structure of a complex system. Finally, I turn to the *Theaetetus*, where Plato, for the first time, uses *stoicheion* in the sense of ‘element’ and where, through the relation letters/syllables, Plato clarifies that enumeration and juxtaposition are not sufficient to attain the real knowledge. I will argue that only thanks to these steps can we understand the occurrences of *stoicheion* in the *Timaeus*, where Plato first states that air, earth, fire and water are not *stoicheia tou pantos*, and then reveals that, instead, the basic triangles are ‘the elements of the universe’.

Keywords: Plato, Element, Letter, *Timaeus*, *Theaetetus*, *Cratylus*.

“God is always doing geometry”. Whether or not authentically Platonic, this sentence vividly captures a central tenet of Plato’s cosmology in the *Timaeus*.¹ The interpretation of the cosmos, as a reality generated through mathematics, is comprehensible only within the Platonic metaphysical structure presented in that dialogue.

In the *eikos logos* of the *Timaeus*, Plato introduces the structure, but not the ultimate essence, of the cosmos. The physical world and the fundamental structures of matter are traced back to an orderly and symmetrical combination of geometric shapes. However, the bipolar relationship sensible/intelligible affects Plato’s cosmology as well as his view of the four elements, their origin, their forms and their characteristics. Indeed, Plato dissents from the pre-Socratic belief that fire, air, water and earth are the building blocks of reality. When he explains that these four elements are not principles, he calls *Timaeus*’ speech an *eikos logos*, a *plausible* and *reasonable* account.²

¹ On mathematics in Plato, see Burnyeat, 2000, p. 1-81; Mueller, 2005, p. 101-121. On Plutarch’s interpretation of the dictum “God is always doing geometry”, see Ferrari, 2016, p. 87-96.

² On the *eikos logos* of the *Timaeus*, see: Betegh, 2010; Burnyeat, 2009, p. 167-186; Mesch, 2002; Racionero, 1998; Berti, 1997; Santa Cruz, 1997; Donini, 1988; Smith, 1985; Hadot, 1983; Turrini, 1979; Witte, 1964.

Plato argues that fire, air, water and earth are *erroneously* considered *stoicheia tou pantos*. *Stoicheion* is a polysemantic term, meaning 'letter of the alphabet', 'geometric shape', and 'physical element'.

I begin by presenting the history of the notion of *stoicheion*; then, since one of the meanings of *stoicheion* is 'letter of the alphabet', I focus on the *Cratylus*, which contains the first of several passages where Plato employs the alphabet as a paradigm for the structure of a complex system. While this notion of reducing the cosmos to a group of basic elements is not new, we will see that the terminology used is a Platonic innovation. Finally, I turn to the *Theaetetus*, where Plato, for the first time, uses *stoicheion* in the sense of 'element'³ and where, through the relation letters/syllables, Plato clarifies that enumeration and juxtaposition are not sufficient to attain the real knowledge. I will argue that only thanks to these steps can we understand the occurrences of *stoicheion* in the *Timaeus*, where Plato first states that air, earth, fire and water are not *stoicheia tou pantos*, and then reveals that, instead, the basic triangles are 'the elements of the universe'.

1. *Stoicheion*: a debated term

The history of the notion of *stoicheion* has been debated at least since Diels (1899) or, half a century later, Burkert (1959, p. 167-197). This scholarly discussion argued for the priority of the linguistic semantic value ('letter of the alphabet') over the cosmological one ('basic component'), and also to examine the validity of Eudemus' testimony (in a fragment preserved by Simplicius, *In Phys.* 7.12-15), according to which Plato was the first to use *stoicheia* in the sense of 'physical elements', or rather of 'elementary principles of natural and generated things'. One may remark that Aristotle in the *Metaphysics* (A.4 985a32; 948a8) says that Empedocles, not Plato, is the first to name fire, air, water and earth as the four kinds of *stoicheia*; however, it is well known that Empedocles rather calls them *panton rhizomata*

³ *Tht.* 201e, according to most interpreters; see Taylor, 1928, p. 306.

(roots of all things) (DK31 B6) (Crowley, 2005, p. 367). Furthermore, the pre-Socratics usually employed terms such as *schemata*, *ideai*, *physeis*, or *atoma* when they referred to our (or Aristotle's) 'elements'. Therefore, through his choice, Plato aims to distance himself from his predecessors.

Diels validates Eudemus' claim, but there are also supporters of an alternative view, according to which the Atomists, or rather the Pythagoreans (S. E. M. 10.2, 8), were the first to use *stoicheia* for the principles of all things (Burnet, 1930, p. 228, n. 1). Lastly, others hypothesize that some anonymous Athenian teacher may have introduced the term to explain Empedocles' doctrine of the four roots—which, since then, have been known as the four *stoicheia* (Crowley, 2005, p. 368; Lagercrantz, 1911, p. 17-18).

Greek dictionaries, like Bailly, Liddell-Scott or *Thesaurus linguae graecae*, do not mention any attestations before Plato; neither do the Homeric Lexicon and the Herodotean Lexicon (Druart, 1968, p. 421). The root **steich* suggests the notion of 'row, alignment, order'; by contrast, the philosophical meaning of *stoicheion* fluctuates between *gramma* and 'cosmological element', or, more generally, *arche*, principle. Overall, the general consensus is that the philosophical use of *stoicheion* is metaphorically derived from its more familiar meaning of 'letter of the alphabet': as A, B, C, etc. make up words, so the natural elements constitute the world.

Plato uses the term *stoicheion* more than sixty times in seven different dialogues (Radice, 2003, p. 842-843), and, especially in his later works, he extensively exploits the relationship between the letters of the alphabet and the syllables they create as an analogy to expound more abstract matters (Ryle, 1960, p. 431).

2. The alphabet as a paradigm

Platonic Greek had two words for 'letter', namely *gramma* and *stoicheion*. Sextus Empiricus, in *Against the Grammarians* 99, says that *stoicheion* may indicate either a character, or the phonetic element for which a given character stands, or the name of a letter.

In the *Cratylus*, Plato's innovation consists in combining this physical notion of element with a linguistic theory according to which the function of names, and of words generally, is to reveal the true nature, or *ousia*, of things, by imitating or resembling the things named. Relying on this principle of correspondence, Plato even envisages an ideal language in which the analysis of names would mirror and reveal the ramified structure of reality (Kahn, 2013, p. 80). Specifically, Socrates develops the suggestion of an ideal language in which the systematic arrangements of its linguistic components would accurately reflect, by similarity (*homoiotetes*; 424d6), the systematic structure of things (*onta*). What follows in the *Cratylus* is the first of several texts in which Plato employs the alphabet as a paradigm for the structure of a complex system:

ἄρ' οὖν καὶ ἡμᾶς οὕτω δεῖ πρῶτον μὲν τὰ φωνήεντα διελέσθαι, ἔπειτα τῶν ἐτέρων κατὰ εἶδη τὰ τε ἄφωνα καὶ ἄφθογγα—οὕτωςί γάρ που λέγουσιν οἱ δεινοὶ περὶ τούτων— καὶ τὰ αὐτὰ φωνήεντα μὲν οὐ, οὐ μέντοι γε ἄφθογγα; καὶ αὐτῶν τῶν φωνηέντων ὅσα διάφορα εἶδη ἔχει ἀλλήλων; καὶ ἐπειδὴν ταῦτα διελώμεθα τὰ ὄντα εὖ πάντα αὐτῶν οἷς δεῖ ὀνόματα ἐπιθεῖναι, εἰ ἔστιν εἰς ἃ ἀναφέρεται πάντα ὥσπερ τὰ στοιχεῖα, ἐξ ὧν ἔστιν ἰδεῖν αὐτὰ τε καὶ εἰ ἐν αὐτοῖς ἔνεστιν εἶδη κατὰ τὸν αὐτὸν τρόπον ὥσπερ ἐν τοῖς στοιχείοις. (Cra. 424c-d)

*Must not we, too, separate first the vowels, then in their several classes the consonants or mutes, as they are called by those who specialize in phonetics, and also the letters which are neither vowels nor mutes, as well as the various classes that exist among the vowels themselves? And when we have made all these divisions properly, we must in turn give names to the things which ought to have them, if there are any names to which they can all, like the letters, be referred, from which it is possible to see what their nature is and whether there are any classes among them, as there are among letters.*⁴

⁴ All translations from Plato's *Cratylus* and *Theaetetus* are taken from Fowler, 1926. All translations from Plato's *Timaeus* are taken from Bury (1929).

The idea of dividing letters into phonetic kinds (*eide*) is also used in the *Philebus* to illustrate the dialectic of Division and Collection, presented there as a general method of rational analysis (*Phil.* 16b-18d). Plato uses the example of the letters of the alphabet in order to clarify the process of division and unification carried out by the Demiurge, both in the creation of names and in that of the structures of reality (Gatti, 2006, p. 478). Here, Plato is tacitly adopting the notion of physical elements as the eternal constituents of perishable compounds, which was developed by fifth-century cosmologists in response to Parmenides' attack on coming-to-be. By contrast, to explain how a small number of elements could produce such an immense phenomenal diversity, Empedocles had used the image of a painter blending colours; similarly, the Atomists too seem to have employed the letters of the alphabet to this end. In the *Cratylus*, Plato echoes Empedocles' comparison to the painter (424d7), while at the same time also borrowing the Atomists' analogy with the letters (*hosper ta stoicheia* 424d2). Thus, in appropriating the pre-Socratic concept of element, Plato labels it with the classical term *stoicheion*, which was to be translated into Latin as *elementum*. The concept comes from fifth-century cosmology, but the terminology is a Platonic innovation; as we will see, it will also be reinforced by its association with geometry.

3. *Stoicheion* as 'element' in the *Theaetetus*

The dialogues where Plato uses *stoicheion* in the sense of 'element' are the *Theaetetus*, the *Sophist* and the *Timaeus*.

In the *Theaetetus*, Plato investigates the nature of knowledge (*episteme*); after defining it as "correct opinion accompanied by logos", he introduces his theory of the elements (Druart, 1968, p. 424). At 201e, Socrates seems rather diffident about using *stoicheion* in this 'elemental' sense. He says:

ἀκούειν τινῶν ὅτι τὰ μὲν πρῶτα οἶονπερὶ στοιχεῖα, ἐξ ὧν ἡμεῖς τε συγκείμεθα καὶ τᾶλλα, λόγον οὐκ ἔχοι. αὐτὸ γὰρ καθ' αὐτὸ ἕκαστον ὀνομάσαι μόνον εἶη, προσεπεῖν δὲ οὐδὲν ἄλλο δυνατόν, οὔθ' ὡς ἔστιν,

οὐθ' ὡς οὐκ ἔστιν, ἤδη γὰρ ἂν οὐσίαν ἢ μὴ οὐσίαν αὐτῷ προστίθεσθαι, δεῖν δὲ οὐδὲν προσφέρειν, εἴτερ αὐτὸ ἐκεῖνο μόνον τις ἐρεῖ.

I in turn used to imagine that I heard certain persons say that the primary elements of which we and all else are composed admit of no rational explanation; for each alone by itself can only be named, and no qualification can be added, neither that it is nor that it is not, for that would at once be adding to it existence or non-existence, whereas we must add nothing to it, if we are to speak of that itself alone.

Precisely what sort of things the *stoicheia* at 201e are meant to be is a matter of dispute: they are often thought to be logical atoms or conceptual constituents, rather than physical ingredients (Crowley, 2005, p. 379, n. 42; Ryle, 1990, p. 21-46). Further, at 202b, Socrates compares syllables with the elements:

οὕτω δὴ τὰ μὲν στοιχεῖα ἄλογα καὶ ἄγνωστα εἶναι, αἰσθητὰ δέ, τὰς δὲ συλλαβὰς γνωστάς τε καὶ ῥητὰς καὶ ἀληθεῖ δόξῃ δοξαστάς. (*Tht.* 202b)

Thus the elements are not objects of reason or of knowledge, but only of perception, whereas the combinations of them (the syllables) are objects of knowledge and expression and true opinion.

By the term 'syllable' Plato indicates what is complex and made up of *stoicheia*/elements—in this case, 'letters'. He provides the example of the first syllable of his name, SO, wondering whether the complex is the sum of all the simple elements of which it is composed, S and O, or whether it is a single form generated by the union of the elements (*Tht.* 203c4-6).⁵

Syllables are not a mere juxtaposition of elements; they have a form and their own nature, distinct from that of the elements (*Tht.* 203e). Therefore, the syllable consists not just in the elements but in a specific combination of these. Through the example of learning how to read, Plato shows that letters/elements are what is known *first*;

⁵ For a thorough analysis of this section, see Sedley, 2006.

therefore, they are knowable and are indeed the source of our knowledge of syllables (*Tht.* 206a1-c2). Here, Plato plays on the different meanings of the term *stoicheion*. He also adds that the enumeration of the elements which make up a compound is not sufficient to lead to science.

πάλιν δὴ, ὅπερ ἄρτι ἐπεχείρουν, οὐκ, εἴπερ ἡ συλλαβὴ μὴ τὰ στοιχεῖα ἐστίν, ἀνάγκη αὐτὴν μὴ ὡς μέρη ἔχειν ἑαυτῆς τὰ στοιχεῖα, ἢ ταυτὸν οὖσαν αὐτοῖς ὁμοίως ἐκείνοις γνωστὴν εἶναι; (*Tht.* 205a-b)

If the syllable is not the letters, does it not follow necessarily that it contains the letters, not as parts of it, or else that being the same as the letters, it is equally knowable with them?

Consequently, ‘element’ is not synonymous with ‘physical part’, but refers to something of a different kind. Plato says:

πότερον ἡγούμενος ἐπιστήμονα εἶναι ὄντινοῦν ὄπουοῦν, ὅταν τὸ αὐτὸ τοτὲ μὲν τοῦ αὐτοῦ δοκῇ αὐτῷ εἶναι, τοτὲ δὲ ἑτέρου, ἢ καὶ ὅταν τοῦ αὐτοῦ τοτὲ μὲν ἕτερον, τοτὲ δὲ ἕτερον δοξάζῃ; (*Tht.* 207d)

Do you accept it in the belief that anyone has knowledge of anything when he thinks that the same element is a part sometimes of one thing and sometimes of another or when he is of opinion that the same thing has as a part of it sometimes one thing and sometimes another?

Logos is not an enumeration of elements, because enumerations can at best be descriptions, not explanations, of a given term. This is why, in referring to a Hesiodic passage from *Works and days* 456, Socrates claims that, although he is not able to list the hundred pieces of the wagon to which Hesiod alluded, he is nonetheless able to name its main parts; thus, enumerating the parts of a wagon is not enough to express its *ti esti* (*Tht.* 207a).

In the *Theaetetus*, Plato relies on the semantic ambiguity of *stoicheion*, which occurs 19 times alongside *syllabai* and 16 times on its own, 24 times with the meaning of ‘letter’ and only 5 times with

that of ‘material constitutive element’. Plato’s line of argument suggests that *stoicheion* is first used in the sense of ‘material constitutive element’ and only later acquires the meaning of ‘explanatory principle of reality’ (Druart, 1968, p. 432).

ἔχέτω δὴ ὡς νῦν φαμεν, μία ἰδέα ἐξ ἐκάστων τῶν συναρμοσθέντων στοιχείων γιγνομένη ἢ συλλαβή, ὁμοίως ἐν τε γράμμασι καὶ ἐν τοῖς ἄλλοις ἅπασιν. (*Theaet.* 204a)

Let it be, then, as we say now, that the syllable or combination is a single form arising out of the several conjoined elements, and that it is the same in words and in all other things.

In the *Theaetetus*, Socrates focuses on the familiar ‘alphabetic’ sense of *stoicheion* to emphasize other, more speculative, semantic implications. This involves the use of *stoicheion* with reference to things with which we are less familiar (Crowley, 2005, p. 391). Thus, the philosophical use of this word has been formed progressively. This should not surprise us, as most philosophical technical terms – including, for example, *ousia*, *hyle* and *kategoria* – originally had a different, non-technical, meaning and were gradually adapted and re-semanticized to fit other, philosophical, contexts (Centrone, 2015, p. 18-19). After Plato, Aristotle and the Stoic tradition too employed this new association between language and reality, using *stoicheion* to refer to earth, water, air and fire. They share the view that the physical world can be reduced to a finite number of original components, which represent the building blocks of more complex entities.⁶

⁶ “Earth, water, air and fire are the original components of each sublunary natural body and also of the celestial simple body as the first of the elements”. See Falcon, 2008, p. 50.

4. The occurrences of *stoicheion* in the *Timaeus*

Plato, in his *Theaetetus*, presents the theory of the elements in a new form: not as a mere reduction to elementary stuffs, as according to Anaxagoras and Empedocles, but as a theory in which elements are parts of a structured whole, as according to the atomistic model (Sedley, 2006). This theory is then developed in the *Timaeus*, especially in its second part. Here, Plato deals with the physical constitution of the cosmos as an ordered universe provided with movement. In this cosmos converge both a material principle, the *chora*, and an intelligible principle, the World Soul. Within this framework, the four elements take part in the constitution of the material principle, according to a teleological criterion and a proportion that binds them into a single cosmos, where each part is friendly to every other (*Ti.* 31a-33b).

There is, however, another, more profound, difference from the traditional theory of the elements which is worth stressing. In Plato's *Timaeus*, the four elements are not *stoicheia* in the sense of 'constitutional and primitive elements', for they are not even *syllabai*. On the contrary, they are themselves made up of simpler bodies. Indeed, the constitutional elements of Plato's cosmos are the simplest flat surfaces, that is, triangles, regularly combined into a stereometric construction of the four elements (*Ti.* 53c-55b). Hence, fire is made up of regular pyramids or tetrahedra, air can be broken down into octahedra, the solid corresponding to earth is the cube, and that corresponding to water is the icosahedron. This doctrine is presented as a combination of the Empedoclean four roots with the Pythagorean regular solids that can be inscribed in a sphere.

In the *Timaeus*, Plato uses the word *stoicheion* seven times from section 54 to section 61.

At 48b-c, he employs the letter/syllable model to explain how a few material elements associate into multifarious compounds (Ryle, 1960, p. 431). In one crucial passage, through his spokesman Timaeus, Plato reports the popular belief that fire, air, water and earth are the principles and elements of all things. He claims that anyone

who reflects seriously on the matter will agree that fire, air, water and earth cannot be regarded as the most basic constituents of things. He writes:

τὴν δὴ πρὸ τῆς οὐρανοῦ γενέσεως πυρὸς ὕδατός τε καὶ ἀέρος καὶ γῆς φύσιν θεατέον αὐτὴν καὶ τὰ πρὸ τούτου πάθη. νῦν γὰρ οὐδεὶς πω γένεσιν αὐτῶν μεμήνυκεν, ἀλλ' ὡς εἰδόσι πῦρ ὃ τί ποτε ἔστι καὶ ἕκαστον αὐτῶν λέγομεν ἀρχὰς αὐτὰ τιθέμενοι **στοιχεῖα τοῦ παντός**, προσῆκον αὐτοῖς οὐδ' ὡς ἐν συλλαβῆς εἶδεσι μόνον εἰκότως ὑπὸ τοῦ καὶ βραχὺ φρονοῦντος ἀπεικασθῆναι. (Ti. 48b-c)

*We must gain a view of the real nature of fire and water, air and earth, as it was before the birth of Heaven, and the properties they had before that time; for at present no one has as yet declared their generation, but we assume that men know what fire is, and each of these things, and we call them principles and presume that they are **elements of the Universe**, although in truth they do not so much as deserve to be likened with any likelihood, by the man who has even a grain of sense, to the class of syllables.*

This passage implies that, by Plato's time, the four elements are commonly considered to be the constituents of all things and referred to as *stoicheia*. Since, in the *Timaeus*, this appears to be a widespread, although mistaken, use of the word, Crowley claims that we can hardly attribute the introduction of the 'elemental' sense of *stoicheion* to Plato (Crowley, 2005, p. 379-380). The four elements are not *principia* but *principiata*; what is more, they are not even the first items in the sequence of *principiata*, for they are produced by the Demiurge from shapes and numbers.

As we saw, for Plato, fire, air, water and earth are so far from being *stoicheia* that they are not even like *syllabai*. Although this term has obvious grammatical connotations (designating 'a compound of phonemes'), here Plato uses it as a metaphor for a minimally complex body. In his commentary on the *Timaeus*, Taylor (1928) helpfully glosses *stoicheia tou pantos* as "literally the ABC of everything". In short, Plato does not believe that fire, air, water and earth are the ultimate constituents of all things, nor that they are as

basic as *syllabai*, because, unlike the four elements, a syllable is the very first thing that *stoicheia* constitute. Plato here is drawing an analogy between the four elements as the constituents of bodies, and phonemes or letters as the constituents of *syllabai*. For it to work, *stoicheia* must be a term commonly used to refer *both* to fire, water, air and earth *and* to letters. Hence, in the context of *Timaeus* 48b-c, *stoicheia* must be understood not only in relation to *syllabai* ('letters'), but also in its 'elemental' sense; at the same time, the use of the word *syllabai* must be accommodated to both senses of *stoicheia*. Therefore, as argued by Crowley (2005, p. 383-384), the term used metaphorically in this passage is not *stoicheia*, but *syllabai*.

A little later in the dialogue, Plato explains why. At 53c-d, he says that the four elements are bodies, that all bodies are solids, that all solids are limited by surfaces, and, finally, that these surfaces are divisible into scalene and isosceles triangles; it is these triangles which are held to be elementary (Crowley, 2005, p. 381).

From this moment on, Plato proceeds to treat the basic triangles as the *stoicheia* of things, and, in some occurrences, *stoicheion* can even be translated as 'elemental triangle'.

ἄρξει δὴ τό τε πρῶτον εἶδος καὶ σμικρότατον συνιστάμενον, **στοιχεῖον** δ' αὐτοῦ τὸ τὴν ὑποτείνουσας τῆς ἐλάττονος πλευρᾶς διπλασίαν ἔχον μήκει. [...] τὸ δὲ τρίτον ἐκ δις ἐξήκοντα τῶν **στοιχείων** ξυμπαγέντων, στερεῶν δὲ γωνιῶν δώδεκα, ὑπὸ πέντε ἐπιπέδων τριγῶνων ἰσοπλευρῶν περιεχομένης ἐκάστης, εἴκοσι βάσεις ἔχον ἰσοπλευροῦς τριγῶνους γέγονε. [...] ἔστω δὴ κατὰ τὸν ὀρθὸν λόγον καὶ κατὰ τὸν εἰκότα τὸ μὲν τῆς πυραμίδος στερεὸν γεγονὸς εἶδος πυρὸς **στοιχεῖον**⁷ καὶ σπέρμα· τὸ δὲ δεύτερον κατὰ γένεσιν εἴπωμεν ἄερος, τὸ δὲ τρίτον ὕδατος. [...] καὶ ἀήρ, διαχεῖτον, ὁ μὲν κατὰ τὰ διάκενα, τὸ δὲ καὶ κατὰ τὰ τρίγωνα· βία δὲ ἄερα συστάντα οὐδὲν λύει πλήν κατὰ τὸ **στοιχεῖον**, ἀβίαστον δὲ κατατήκει μόνον πῦρ. (*Ti.* 54 d; 55b; 56b; 61a-b)

⁷ In this case the meaning of *stoicheion* is not elemental triangle, but just element.

*First will come that form which is primary and has the smallest components, and the **element** thereof is that triangle which has its hypotenuse twice as long as its lesser side. [...] And the third solid is composed of twice sixty of the **elemental triangles** conjoined, and of twelve solid angles, each contained by five plane equilateral triangles, and it has, by its production, twenty equilateral triangular bases. [...] Thus, in accordance with the right account and the probable, that solid which has taken the form of a pyramid shall be the **element** and seed of fire; the second in order of generation we shall affirm to be air, and the third water. [...] But air when forcibly condensed is dissolved by nothing save by way of its **elemental triangles**, and when unforced it is melted down by fire only.*

Some scholars have regarded the five regular solids used in the *Timaeus* to describe the elements as the proof of the Pythagorean origin of the term *stoicheion*. However, these solids are the result of the studies of Theaetetus, Plato's friend, and probably reflect the activity of the Academy; moreover, as far as we know, Plato is the first to use them to explain the genesis and the structure of the physical elements.

5. Concluding remarks

Based on these considerations, we can state that Plato's awareness and use of the polysemy of *stoicheion* show his view of the origin, the complexity and, at the same time, the order of reality. His word choice reveals how he reacted to pre-Socratic cosmology, and thus helps us to understand the role of symmetrical structure within the cosmology of the *Timaeus*. For his use of *stoicheion* allowed him both to inherit and to detach himself from his predecessors.

Earth, water, air and fire are, so to speak, generally considered the alphabet of nature. It is possible that Eudemus claimed that Plato was the first to use the term *stoicheion* in this sense, having in mind Plato's *Cratylus*; alternatively, he may have been referring to the use of *stoicheion* for elementary triangles in the *Timaeus*, for that context

reflects the transfer from the mathematical to the physical sense of ‘element’.

As we saw, Crowley (2005, p. 369) has argued that Plato is appealing to a common usage of *stoicheion*, rather than introducing an original sense of the term; however, there is no sufficient evidence that any of Plato’s predecessors used *stoicheion* with the sense of ‘element’. Be that as it may, from a philosophical point of view, the way in which Plato uses this term is interesting in itself, regardless of whether Plato himself or someone else introduced the meaning of ‘element’. In the *Theaetetus* and in the *Timaeus*, Plato resorts to the ‘alphabetic’ sense of *stoicheion* in order to clarify certain characteristics of the sort of things that his contemporaries identify as the *stoicheia* of nature; in the *Theaetetus*, with an epistemological purpose, in the *Timaeus*, from a cosmological perspective.

As Aristotle points out in *Metaphysics* Delta, the general, core meaning of *stoicheion* is ‘that first, indivisible, constituent out of which something is composed’,⁸ namely the simplest and most primitive starting-point from which the rest of something can be understood. One may remark that Aristotle explicitly regards as ordinary—that is, *non*-metaphorical—uses the ‘alphabetic’, the ‘elemental’ and the ‘geometric’ senses of *stoicheion*. However, we should bear in mind that many technical terms were originally introduced into scientific jargon as metaphors and that, over time, they probably became ‘dead metaphors’. At any rate, it seems clear that the core sense of *stoicheion* by Aristotle’s time is that of ‘a basic part of a whole’ (Crowley, 2005, p. 392).

The path which we traced through the *Cratylus*, the *Theaetetus* and the *Timaeus* leads us to reflect on the evolution and comprehensiveness of Plato’s philosophical investigation, where linguistic choices have metaphysical depth. As also Druart (1958, p. 434) pointed out, the introduction of the term *stoicheion* is a tentative

⁸ *Metaphysics* Delta is devoted to discussing the number of ways in which things are spoken of. See Arist. *Metaph.* E.4 1028a4; Z.1 1028a11; Θ.1 1046a4-6; I.1 1052a15.

answer to the *ti esti?* question concerning reality, in that on-going research that is Plato's philosophy. His aim is not to establish the nominal definition of a term; he wants to understand what the named thing is.

Since *stoicheion* in the *Timaeus* also, and mainly, refers to the geometrical solids as the constituents of the cosmos, it is possible to recognize Plato's view as Pythagorean; however, this Pythagorean inspiration is heavily redesigned and is presented not in a study of nature, but within a metaphysical research. For *stoicheia* are the constituent elements of that cosmos which the *Timaeus* defines as "the fairest of all that has come into existence" (*Ti.* 29a).⁹ Thus, as often happens in Platonism, relations valid on a logical and epistemic level are transformed into ontological relations.

We began by saying that, in the *Timaeus*, Plato introduces, through an *eikos logos*, the structure, but not the essence, of the cosmos. We are now in a position to add and clarify that it is precisely through the structure that Plato aims to introduce the ultimate essence of the universe.

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⁹ See *Ti.* 29a: παντι δὴ σαφές ὅτι πρὸς τὸ αἶδιον· ὁ μὲν γὰρ κάλλιστος τῶν γεγονότων, ὁ δ' ἄριστος τῶν αἰτίων. *But it is clear to everyone that his gaze was on the Eternal; for the Cosmos is the fairest of all that has come into existence, and He the best of all the Causes.*

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