

# **Heraclitean Flux Metaphysics**

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## **Abstract**

This essay offers an original interpretation and defense of the doctrine of flux, as it is presented in Plato's Theaetetus. The methodology of the paper's analysis is in the style of rational reconstruction, and it is highly analytic in scope, in the sense that I will focus on the text itself, and only on certain parts of it too, while ignoring the rest of Plato's extensive corpus, and without worrying about whether, how, and to what extent the interpretation of the view coheres well with the other elements of the secret doctrine view discussed in the dialogue, as well. In the first part of the essay, I'll offer my interpretation of the doctrine. Then, in the second part of the essay, I'll examine two potential criticisms of the doctrine, including Socrates's infamous linguistic paradox, and show how my interpretation of Heraclitean flux metaphysics is able to circumvent both.

## **Key Words**

Plato's Theaetetus, Heraclitus, Flux Metaphysics, Structuralism, Process Philosophy, Dynamism, Philosophical Cosmology

## **Word Count**

about 9450 words (excl. References, Abstract)

## 1. Introduction

The purpose of this essay is to offer an original interpretation and defense of the *doctrine of flux*, as it is presented in Plato's *Theaetetus*. The doctrine of flux is a complex metaphysical thesis. It is most directly attributed to Heraclitus of Ephesos (c. 500 BC), although Socrates (perhaps jokingly) also attributes it to just about every other early, Pre-Socratic Greek cosmologist, as well (with the exception of Parmenides). The methodology of the paper's analysis is in the style of *rational reconstruction*, rather than strict, *philological exegesis* or *critical doxography* (cf. Oniščik 2005, Rorty 1998); and it is highly analytic in scope, in the sense that I will focus on the text itself, and only on certain parts of it too, while ignoring the rest of Plato's extensive corpus, and without worrying about whether, how, and to what extent the interpretation of the view coheres well with the other elements of the *secret doctrine* view discussed in the dialogue, as well. The secret doctrine is a multi-faceted doctrine, cutting across many domains of inquiry. It is partly epistemological, partly linguistic, partly perceptual, partly physical, and partly metaphysical. 'The doctrine of flux' is intended only to designate the metaphysical parts of the secret doctrine—at least, as I use the name here.

This essay performs two tasks. In the first part of the essay, I'll offer my interpretation of the doctrine. It can be stated simply enough (see §2.5), but several of my interpretive decisions demand justification, and at least one aspect of the flux doctrine is open to multiple interpretations. I'll discuss this topic at some length. Then, in the second part of the essay, I'll examine two potential criticisms of the doctrine (as I interpret it). The first is an interpretive issue which I raise. And the second is the linguistic paradox proposed to the doctrine by Socrates from within the dialogue. I will show how my interpretation of the doctrine is able to circumvent both. If my

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<sup>1</sup> Oniščik (2005: 245): "[Rational reconstruction is a methodological procedure] practiced by analytical philosophers reading philosophers in the past 'in the hope of treating these philosophers as contemporaries, as colleagues with whom they can exchange views' [(Rorty: 1998: 247)]. The practitioners of a rational reconstruction try to involve the past thinkers in an imagined dialogue or conversation about philosophical problems of our times." No doubt, some may find some of my interpretation of the doctrine and reply to objections to it to be anachronistic, and in explicitly announcing this methodology, a practitioner of strict historical reconstruction may think I am simply asking for a get-out-of-jail-free card, which I ought not be awarded. But on this point, I think we would do better to agree with Rorty (1998: 251): "such enterprises in commensuration are, of course, anachronistic. But if they are conducted in full knowledge of their anachronism, they are unobjectionable." I would add they can also be very valuable philosophical exercises, for both the philosopher and her reader.

interpretation is correct, then what this means is that the Heraclitean doctrine of flux has not been decisively refuted.

## 2.1. Analytic Interpretation of Flux Metaphysics

In this first part of the essay, I'll offer an analysis and interpretation of the flux doctrine. (The relevant sections of the text are 152c-157c.)<sup>2</sup> As I understand it, the doctrine of flux is a complex metaphysical thesis comprised of (at least) three metaphysical sub-theses, some pertaining to fundamental ontology, and some pertaining to philosophical cosmology. To commit to the flux doctrine is, first, to commit to a kind of *ordered structuralism* about ontology. Second, it is to commit to a kind of *perdurantism* about the existence of beings across time. And third, it is to commit to a kind of *presentism* about the existence of time. Together, these theses produce a *flux metaphysic* (181a). I'll now further elucidate and attempt to defend each of these interpretive decisions with textual evidence. Note that my interpretative decisions of Heraclitan flux here are looser and, no doubt, more playful than one might find in an essay whose purpose is more expressly doxographical or philological, such as in Cornford (1934), White (1976), Burnyeat (1990), Taran (1999), Papamichael-Paspalides (2005), Colvin (2005), Miller (2005), Christidis (2009, 2012), Thaler (2013), Ferrari (2015), Fronterotta (2015), Neels (2018), Begley (2021), or Graham (2021).

## 2.2. Ordered Structuralism

To commit to the doctrine of flux is, first of all, to commit to a kind of structuralism. *Structuralism* is the thesis that the most fundamental entities in the world are *relational entities*, of one kind or another, rather than, say, ordinary objects or monadic properties. Support for this claim is evident from several places in the text. For example, Socrates says on behalf of the view that: “[T]he universe really is motion and nothing else” (156a). Motion is a kind of relation. One can move oneself (i.e., animation), or one can move something else; but one cannot simply move. Moreover, a thing always moves from one location to another; movement binds the agent to both locales.<sup>3</sup> He says on behalf of it also that: “[T]here is no such thing as an agent until it

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<sup>2</sup> All translations used in the text come from Cornford (1934). To triangulate this translation, cf. also, e.g., Chappell (2005), McDowell (2014), or Jowett (c. 1850).

<sup>3</sup> For these reasons, I would say that motion (*M*) is best understood as a four-place relation, taking an agent, the mover (*a*); the patient, the thing moved (*p*); the origin, the location from which something is moved (*L<sub>1</sub>*); and the destination, the location to which something is moved

meets with a patient, nor any patient until it meets with an agent... [W]hat meets with something and behaves as agent, if it encounters something different at another time, shows itself as patient” (157a). In the first quoted passage, we are given a categorical ontological generalization. And in the second, we are told that agents and patients (relata) obtain their existence and arise out of their supporting, overarching relation.

There are at least two dimensions distinguishing different definite structuralist positions from one another. One dimension of distinction among them is whether they suppose a flat or ordered metametaphysical position about ontology (cf. Schaffer 2009). *Flat structuralism* supposes that in the entire inventory of the world, there are *only relations*. These relations are either relata-less or their relata are themselves comprised of further relations, both on the agent and patient side of the primary relation (cf. Yaghmaie 2021, but cf. also Krause 2003, Bain 2013). *Ordered structuralism*, on the other hand, supposes that there is (or may be) *another category of being* in the entire inventory of the world, as well. Perhaps there are also properties, sets, ordinary objects, numbers, and so on; but whatever else there may be within our interlevel ontology, such beings are *derivative entities*. Relations are the *most fundamental* category of entity. Every token instance of every other type of category is *grounded* in one way or another by some relation or other (cf. Schaffer 2009, Rosen 2010, Fine 2012).

I would suggest that the doctrine of flux is committed to a kind of sorted structuralism, since Socrates says on behalf of the view that: “[W]e must express ourselves in each individual case and in speaking of an assemblage of many—to which assemblage people give the name of ‘man’ or ‘stone’ or of any living creature or kind” (157b-c). Here, he is directly acknowledging the existence of men and stones and other living creatures and kinds. These are categories of object, and so it would follow that material objects, at least, exist and are a part of the furniture of the world. However, they are comprised of relations; they are mere *assemblages* of them.<sup>4</sup> Composition is usually understood as a kind of grounding relation. One might dispute this by claiming that in this passage, Socrates should not be understood to be acknowledging the

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( $L_2$ ). In FOL:  $M(a, p, L_1, L_2)$ . Plausibly, movement might also involve two additional indices of time, since time and motion are internally related, too (cf. Aristotle, *Physics*).

<sup>4</sup> This would seem to commit the flux metaphysician to a kind of *bundle theory* of objects. The most common forms of bundle theory suppose that ordinary objects in the world are bundles of properties (by which they usually mean monadic properties), but if the interpretation offered here is correct, then the bundle theory under examination holds that objects are ultimately bundles, instead, of polyadic properties—and only partial ones, at that (more on this later). See Ehring (2001) for more on this point. Most often, bundle theorists also hold that properties (monadic or polyadic) should be understood as *tropes*. See McDaniel (2001), O’Leary-Hawthorne (1995), and Simons (1994) for more on *tropic bundle theory*.

existence of these objects. But this cannot be sustained. Consider the difference between saying that ‘there is no water’ and ‘water is really just an aggregate of hydrogen and oxygen atoms, with a 2:1 ratio between the former and the latter.’ The first sort of statement expresses *nihilism* about water; the second, *reductivism* about it. In speaking of men and stones as “aggregates,” Socrates is speaking like the *reductivist*, not like the nihilist, with respect to fundamental ontology. (See also §3 for additional passages which lend support to this interpretation.)

The second dimension of distinction dividing species of structuralism from one another is of *what specific kind of relation* they suppose are the most fundamental, if any. *Process ontology* supposes that the most fundamental kind of relation in the world are *processes*. *Dynamism* (or *energism*) supposes that the most fundamental kind of relation in the world are *powers* or *energies*. These might be understood as active, unextended atoms of sorts. (More on both of these accounts in §3.) And there are other positions still, such as the position that there are many relations in the world, each ultimately equally as fundamental as certain others. Some scholars, such as Buckels (2016) and Burnyeat (1990), suggest that the doctrine of flux is ultimately a kind of process philosophy (cf. also Seibt 2020), so that “motion” should be conceived here as a kind of *process*. Other scholars, such as the early 20<sup>th</sup> century Neoscholastics (cf. Bittle 1941, Gerrity 1947, Shallo 1916, Mercier 1916), thought Heraclitus’s philosophical cosmology was ultimately *dynamistic*, so that “motion” should be understood instead as a kind of *dynamis*.

So far as I can tell, the text is indeterminate on the matter, and the most cautious reading probably is to suppose that the ontic fundamentality ordering assumed by the metaphysic stops at the level of relation and goes no further. Socrates’s representation of flux metaphysics as committed to everything being *motion*, then, on my interpretation, should be taken as an *ex pede Herculem*, an instance of synecdoche, whereby we use a part, or a species of a larger genus, to figuratively make claims of the whole. Here are some points Socrates says on the exact sort of relation(s) assumed by the theory: “[I]f you call [anything] ‘large,’ it will be found to be also small; if ‘heavy,’ to be also light; and so on all through” (152d). Consider also: “[Nothing can] become larger or more otherwise than by being increased” (155a). Here, larger-than and smaller-than are acknowledged. “All things are the offspring of a flowing stream of change” (152e). Here, change is acknowledged. “[B]eing,’ so-called, and ‘becoming’ are produced by motion” (153a). Motion is acknowledged. “[N]othing can become greater or less, either in size or in number, so long as it remains equal to itself” (155a). Here, mathematical relations pertaining to quantity *per se* are acknowledged. “The universe really is motion and nothing else” (156a). Motion again. And in many places, perception is acknowledged as well. To my

mind, it is unclear whether there is a plausible case for thinking that all of these sorts of relation can ultimately be either reduced to or grounded by processes, powers, energy, or any other ontological, significantly unified species of relation.

### 2.3. Perdurantism

Second, to commit to the doctrine of flux is to commit oneself to a kind of perdurantism about the existence of beings across time. *Perdurantism* is the thesis that the fundamental entities of the world do not exist at any one particular time but rather are four-dimensional mereological wholes comprised of a series of numerically distinct individuals that do exist at each individual instant in time.<sup>5</sup> This is sometimes called the *temporal mereological worm theory*, because the theory proposes that the fundamental entities of the world are, like worms, comprised of a series of (time-slice relative) segments (cf. Hawley 2020). Perdurantism is in opposition to endurantism about the existence of beings across time. *Endurantism* is the thesis that the fundamental entities of the world do exist at particular moments of time and may also exist (as numerically identical) across several time-intervals. The endurantist would say that, I, for example, am *wholly present* in this moment... and in this moment too. The perdurantist, by contrast, would say that I am only ever *partially present* at any given moment in time (cf. Gallois 2016; Koons & Pickavance 2015; Koons & Pickavance 2017).<sup>6</sup>

The reason I say that the doctrine assumes a kind of perdurantism is because Socrates makes the following remarks. First, he says: “All things we are pleased to say ‘are,’ really are in process of becoming... [N]one of them ever is; they are always

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<sup>5</sup> The terms ‘perdurantism’ and ‘endurantism’ and their derivatives are unfortunately ambiguous within contemporary metaphysics. Sometimes the contest between the perdurantist and endurantist is put in terms of *existence and identity*, as I have done here; other times, in terms of *fundamentality*, an issue of interlevel metaphysics; other times still, in terms of *temporal mereology*, how an entity’s temporal parts relate mereologically with one another and with the temporal entitative whole. And depending on how the debate is framed, both positions might be distinguished in different ways too. In fact, *how these terms ought to be defined* is also a point of dispute among contemporary metaphysicians... I cannot hope to resolve these disputes here, and so I will continue to use the terms as so defined above. Should one prefer to carve them differently, that’s his prerogative; I would not dispute it. (Thanks to an anonymous reviewer of *Metaphysica* for drawing my attention to this point and recommending I address it.)

<sup>6</sup> This may be a bit obscure. The reader might benefit by comparing perdurantism and endurantism to the two dominant positions of identity within possible worlds modal metaphysics, counterpart theory and transworld identity theory, respectively (cf. Lewis 1968, Chisholm 1967, Bassford 2020, Bassford 2021, Bassford & Dolson *forthcoming*).

becoming” (152d-e). I understand Socrates to be speaking in this passage about the domain of fundamental ontology.<sup>7</sup> If this is so, then here Socrates is telling us that no fundamental entity ever has full being, whatever that might mean, but rather its being is in some way dependent upon the influence of time. One natural interpretation of this passage is, of course, the perdurantist one. Just as I *become wet* by first putting my feet in the pool, then my legs, and so on, it should stand to reason that a thing may be said to *become existent* should first one part of it come to exist, then another part, and so on.

Similarly, Socrates writes: “[W]hat you call white color has no being as a distinct thing outside your eyes nor yet inside them, nor must you assign it any fixed place. Otherwise... it would have its being in an assigned place and abide there, instead of arising in a process of becoming” (153d-e). I, again, understand Socrates to be taking the domain of fundamental ontology as his intended domain of discourse. And so, here, Socrates tells us that none of the fundamental entities of the world have “an assigned place” in space or time or “abide there.” On a perdurantist reading, this makes sense: The most fundamental objects have no *one* assigned place in space or time, but instead possess parts which are spread out across *many* places and time intervals.

There is also a more indirect argument to be made in favor of this interpretation, as well. One can either accept endurantism or perdurantism; there is no third option, since we live in time (cf. James 1890: Chapter 2; Heidegger 1927). But it would appear that endurantism would be inconsistent with Socrates’s statement of the doctrine. And so the view must assume a kind of perdurantism. The reason I say the doctrine is inconsistent with endurantism is because, again, Socrates expressly denies that anything has full being, but is rather always in the process of becoming. But if we are to suppose that the fundamental phenomena can exist fully at one particular time, however exactly this is cashed out, then it would appear that that object does in fact fully exist at that instant; which is absurd.

## 2.4. Presentism

Finally, I understand a commitment to the doctrine of flux to be a commitment to a kind of presentism about the nature of time. *Presentism* is the thesis that neither the past nor future exist, but only the present. The past once existed, and the future will

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<sup>7</sup> Socrates is speaking here most explicitly about perceptual experience; but since his cited premise is metaphysical, I think we may nonetheless safely count it among the first principles of the presented flux metaphysic.

exist, but only the present actually exists. In this sense, to say of something that it exists is just as true as to say that it is in the present moment—*presence* and *existence* are co-extensive.<sup>8</sup> One species of this view is the *moving spotlight* theory, since it represents the passage of time analogously to the passage of a moving spotlight against some material wall. Presentism is in opposition to two other popular theories about the ontological status of the past and future. *Eternalism* is the thesis that all of past, present, and future exists. It is sometimes also called the B-theory of time. And the other does not, to my knowledge, have a fitting name of its own. Both it and presentism agree in being A-theories of time, which suppose that the passage of time is a real feature of the world. But this other view is a kind of *growing block* theory of time, rather than a moving spotlight one. *Growing block theory* supposes that both present and the past exist, but not the future (cf. Emery, Markosian, & Sullivan 2020). Many perdurantists tend to also be B-theorists about the nature of time, and many endurantists tend also to be A-theorists about the nature of time (cf. Koons & Pickavance 2015; Koons & Pickavance 2017). But if I am right, then the flux doctrine is an exception to this rule, as it would be a hybrid of perdurantism and (perhaps, moving spotlight) A-theory.

My reason for thinking that the doctrine of flux presumes a presentist theory of time is somewhat indirect. In the previous section, I argued that the doctrine would appear to presume perdurantism about persistence across time. I will therefore help myself to that conclusion as a premise. My argument is that, if that is so, then the theory must also assume a kind of presentist theory about the nature of time, otherwise it would clash with Socrates's statement of the doctrine. Socrates says of the doctrine that it supposes that: "[Everything] is always in process of becoming for someone, and being is to be ruled out altogether" (157a-b). Supposing Socrates is taking as his intended domain of discourse the most fundamental entities within the doctrine's ontology, I take him to be saying here that those most fundamental entities cannot be said to completely exist. But now suppose eternalism is true. If that is so, then all instants of time are complete and actually exist. The most fundamental entities exist relative to the sum of their instances of time. Therefore, it would follow that their existence is complete, and the most fundamental entities do have complete being. But that contradicts Socrates's claim. And now suppose that growing block theory were true. If that is so, then again, it would follow that some fundamental entities have complete being. This would hold of any fundamental entity which existed but no

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<sup>8</sup> Compare this thesis with that of *actualism* in modal metaphysics (cf. Adams 1974, Bricker 2006). In fact, presentism may be conceived of as an extreme form of actualism more generally.



longer exists in the present. Every instant at which it exists, exists, and so it would follow that so too does that thing in its entirety.

I think, therefore, that the best way to cut this Gordian knot is to take a presentist interpretation. If we assume presentism in conjunction with perdurantism, on the other hand, the problem is avoided, so long as every fundamental entity exists across at least two moments of time. Only one moment of time ever exists. And so, it would follow that no fundamental entity's history is ever complete and exists. In that sense, for so long as it exists, the primary entity would always be in an incomplete state of partial existence (becoming) and never fully in one of existence (being); which is the desired result.

## 2.5. Synthetic Interpretation of Flux Metaphysics

I have now argued that the flux doctrine is a complex thesis comprised of at least three subtheses: *structuralism* (probably of the *ordered* metametaphysical sort), that the most fundamental entities in the world are relations (which then *ground* every other category of entity); *perdurantism*, that those most fundamental entities in the world (i.e., those relations) never exist at just one instant in time, but always through two or more of them; and *presentism*, that only the present interval of time exists, but the past, no longer, and the future, not yet. So, in a summary statement, I understand the doctrine of flux at core to be the thesis that: *The most fundamental entities in the world are relational, which exist at no one time but only ever incompletely across multiple instants of time, and which never fully exist on account that only the present exists, and so only one part of them ever exists at any given time.* To commit to this thesis is to commit to a flux metaphysical worldview.

## 3. Digression: Flux Physics

Before proceeding to examine Socrates's critique of the account, I would like to say a word about one other part of the secret doctrine which is highly relevant to its underlying flux cosmology. This constitutes a rhetorical digression, but it is not therefore without some value. I include it to increase the essay's comprehension.<sup>9</sup> In

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<sup>9</sup> Besides: "[T]he free man always has time at his disposal to converse in peace and at his leisure. He will pass, as we are doing now, from one argument to another... [L]ike us, he will leave the old for a fresh one which takes his fancy more; and he does not care how long or short the discussion may be, if only it attains the truth" (172d).

particular, I would like to say something about the Heraclitean flux *physics* which Socrates sketches to complement the Heraclitean flux metaphysics. (I use ‘physics’ here in the old sense as the most basic science of change.) If I am right, then the flux doctrine holds that what we understand to be objects in the world are, metaphysically speaking, ultimately aggregates of temporal parts of relations of one sort or another. Assuming this is so, what might the Heraclitean say about how and why ordinary material objects (apparently) undergo change in the world? (This is in fact a profoundly perplexing question in its own right.)

Now, Socrates says that the doctrine supposes, first, that: “All of the things we are pleased to say ‘are,’ really are in process of becoming, as a result of movement and change and of *blending* with one another” (152d-e); and second, and in greater detail, that:

[T]he universe really is motion and nothing else. And there are two kinds of motion. Of each kind there are any number of instances, but they differ in that the one kind has the power of acting, the other of being acted upon. From the intercourse and friction with one another arise offspring, endless in number, but in pairs of twins (156a-b)...

[A]ll these things are, as we were saying, in motion; but there is a quickness or slowness to their motion. The slow sort has its motion without change of place and with respect to what comes within range of it, and that is how it generates offspring. [T]he offspring generated are quicker, inasmuch as they move from place to place and their motion consists in change of place (156c-d)...

[T]he rest of them—‘hard,’ ‘hot,’ and all of them—has [no] being just by itself... [B]ut that it is in their intercourse with one another that arise in all their variety as a result of their motion...<sup>10</sup> (156e-157a)

What’s going on here? Here’s how I interpret this passage: We are told several things. There are two kinds of motions in the world: slow motions and fast motions. We are told that objects and properties are the result of motions relating to one another in various ways. Objects in the world are the result of slow motions relating to one another; and their monadic properties are a result of fast motions relating to one another. Fast motions are produced in some way by slow motions; which seems

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<sup>10</sup> Compare to Heraclitus’s remark that: “That which is in opposition is in concert, and from things that differ comes the most beautiful harmony” (trans. Freeman 1948: 25).

intuitive, since substance theorists likewise suppose that substances in some sense bear their accidents (cf. Aristotle, *Categories*).

What strikes me as the most obscure feature of this physic is what Socrates could mean by saying that the basic motions comprising the world “blend with one another.” This phrase will of necessity be interpreted differently by the process and dynamist interpretations of doctrine’s fundamental ontology and philosophical cosmology. For the remainder of this digression, I’m going to speculate about what each interpretation might say on this point. Then, like good hounds, we can resume following the scent of the main dialectic (cf. Plato, *Republic*; Wong 1987).

The Heraclitean process theorist could say that substances apparently change as a result of processes agreeing or disagreeing in sharing a telos. Processes are (plausibly) teleological, having both a beginning and an end. For example, the process of painting a picture begins when I lift the brush and ends when the illustration has appeared on the canvas. If the movements discussed by Socrates here are to be identified with processes, then it would follow that they too have specific tele. In that case, one way two or more processes might form a unity with one another is by taking on a common terminating point. They might form a disunity, moreover, by dividing their tele. In this way, material fission and fusion could be given a teleological analysis, and from there the basic operations we observe in the world could be explained.

The Heraclitean dynamist could say that objects apparently change as a result of energy compounding, division, and transference. Dynamism is, in this way, like atomism. The atomist supposes that material objects in the world are comprised of atoms, and by combining or breaking apart, objects undergo change (cf. Descartes 1644/1647, Boyle 1666, Russell 1912, et al.). The dynamist supposes that there are atoms of sorts too, but whereas the atomist takes his atoms to be passive, extended simples, the dynamist takes hers to be active, unextended simples, which are best thought of as pure forces or units of energy (not to be confused with units of things energized) (cf. Mercier 1916: 131ff; Bittle 1941: 245ff). And so, since dynamism likewise presumes an ontology of simples which can form quantitative wholes, it can suppose that object appear to change in the world as a result of the compounding, division, and transference of *dynameis*. Parts of a dynamo at in instant cluster together to form synchronic wholes; and objectual change occurs as the result of different parts of different *dynameis* undergoing mereological processes. It is unclear what might be said about active, unextended motion, but this is at least the general pattern of

analysis I suggest is available to the proponent of the dynamistic interpretation of the flux doctrine.<sup>11</sup>

#### 4.1. Two Objections to Flux Metaphysics

In this section of the essay, I will now consider potential problems with the flux doctrine (as I have interpreted it—see again §2.5). Then I will show how my interpretation of the doctrine is able to circumvent them. If my interpretation is correct, then what this means is that the doctrine of flux is not decisively refuted, at least not in the text. I will consider two potential problems. The first is an interpretive issue which I raise. And the second is the objection actually proposed to the doctrine by Socrates from within the *Theaetetus*.

#### 4.2. First Objection: “Nothing is One”

The first objection is an interpretive challenge. A critic might present certain passages in the text which are hermeneutically recalcitrant and threaten to make my interpretation internally inconsistent. In fact, these passages are likely to be recalcitrant to any plausible interpretation of Heraclitean flux metaphysics. Nonetheless, they present a special problem to the process theory interpretation, in particular, which is deserving of some note. Throughout the dialogue, Socrates repeats on several occasions an obscure remark. He says the theory holds that: “[N]othing is one thing just by itself” (152d); “[N]othing is one thing or some thing of any definite

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<sup>11</sup> One reason one might like the dynamist interpretation of the Heraclitean flux metaphysics is because it fits well with some of the historical Heraclitus’s actual remarks. The dialogue focuses its attention on Heraclitus’s claim that: “In the same river, we both step and do not step, we are and we are not” (trans. Freeman 1948: 28); or that: “It is not possible to step twice in the same river” (31). But other scholars might be quick to point out Heraclitus’s place in the early Greek cosmological dialectic (cf. Nietzsche c. 1873; Burnet 1892: Chapter 3; Russell 1945: Chapter 4; Copleston 1946: Chapter 5). Thales said everything was water; Anaximander, the *aperion*; Anaximenes, air. Heraclitus said it was *fire*: “The thunderbolt (i.e. Fire) steers the universe” (29); “This ordered universe (cosmos), which is the same for all, was not created by any one of the gods or of mankind, but it was ever and is and shall be ever-living Fire, kindled in measure and quenched in measure” (26); and “There is an exchange: all things for Fire and Fire for all things, like goods for gold and gold for goods” (31). So, if Heraclitus thought every material object is something akin to fire, then we can also expect that his physics would attempt to account for material change by appealing to processes akin to the spreading and extinguishing of fire. (This is obviously an important point for further dialectical inquiry, but I ought not digress twice.)

sort” (152d); “[T]here is no thing that is in and by itself” (153e); “[N]othing is one thing just by itself” (157a-b). Socrates also describes ordinary objects in the world as, again, “assemblage[s]” (157b-c). So, according to Socrates, the flux cosmologist denies that objects are “one thing.” The critic’s challenge is to answer this question without falsifying some other part of my interpretation. Indeed, some may say that this claim is an analytic contradiction on its face and so cannot be resolved (cf. van Inwagen 2009: Coda on “Being”). What could Socrates mean by claiming that *nothing is one*?

### 4.3. Reply to the First Objection

*My Reply:* Given that Socrates describes ordinary phenomena as “aggregates,” I would suggest that he means that the doctrine denies that any substance or property has any real *per se* unity (to borrow an old Scholastic term). *Per se* unification is a formal mereological property. A whole has *per se* unity whenever its parts relate to one another according to an internal principle of composition, as opposed to an external one. Organisms are examples of *per se* unities, since the parts of an organism form a unified system. Its parts naturally work together to maintain the whole without need of influence from any external agent(s) (cf. Bassford *forthcoming*). By contrast, a whole only has mere *per accidens* unity whenever its parts relate to one another according to an external principle of composition. A basket of apples is an example of a *per accidens* unity, since they have only come together as a result of an external agent and only remain together because of the constricting influence of the basket, an external principle of stasis or change (cf. Shallo 1916: 128ff; Bittle 1939: 133ff; Fine 1999; Koons 2014).

There are two reasons why I suggest that this is what Socrates means in saying that nothing is just *one thing*. The first is because, it does not appear that the statement can be given a literal reading. Everything that can be counted is one thing. Motions can be counted, and so they are one. Moreover, aggregates can be counted too. But, since objects are aggregates, it would follow that each object is one thing, contradicting Socrates’s claim, and entailing that the Heraclitean flux metaphysic is internally inconsistent. This is a less charitable interpretation than others which are presently available in our interpretive inquiry. And the second reason is because, although nothing can fail to be one *unit*, nor can anything be more or less *unitary*, things can nonetheless be more or less *unified*. Consider that we are naturally inclined to say that an organism is holistically one, but we are less inclined to say that a bundle of hay is one in a similar sense. I take it that this example lends support to the thought that what Socrates is attempting to track here is *per se* unification, not oneness, *per se*.

This is the way in which I attempt to resolve the interpretive difficulty insofar as it commonly faces any plausible interpretation of the metaphysic. But even if I'm right on this point, certain structuralist interpretations of the doctrine still face an apparent interpretive difficulty. The process theorist, in particular, will need to tread carefully. I have suggested that the process theorist might understand in what sense processes “blend” with one another as a proposal that material fission, fusion, and all other change is the result of individual processes sharing or separating their tele (cf. §3). Now, one problem is that we very often ascribe per se unity to wholes whose parts share a common telos. For example, we understand laptops to be per se unities, because they serve a common end. We understand teams to be per se unities because their members, likewise, share a common end. And we also understand organisms as per se unities, in part, because an organism's parts obey an internal principle of organization and share a common end.

So, the process theorist would apparently need to say, then, that systems, teams, organisms, and other apparently per se unified phenomena of which we are acquainted do not actually have per se unification—or, at least not in a sense significant enough to constitute really being just “one thing.” This would seem to falsify ordinary intuition, but I think there is a rhetorically felicitous error theory available to the process theorist on this point (cf. Mackie 1977, Olson 2014). The process theorist could make a distinction between two kinds of per se unity: synchronic per se unity and diachronic per se unity. A thing has *synchronic per se unity* whenever all of its *parts at a single instant* are per se unified. An example of this is what we see in a completed jigsaw puzzle: at a single instant, all of the pieces relate to one another according to a principle inherent to them alone to form a unified whole. A thing has *diachronic per se unity*, by contrast, whenever all of its *temporal parts* are per se unified. (Because this concept employs the notion of a *temporal part*, it is one that is only available to the B-theoretic perdurantist about time and our being through it.) An example of this is what we see in a motion picture whenever it is being viewed: a story emerges on the screen—but the story never exists at a single moment in time. Moreover, none of the story's parts ever exist at the same moment either. Nonetheless, stories are per se unified wholes. Consequently, we see in this case an instance of a unity which is diachronic even though it is not also synchronic.

Having made this distinction, I then suggest that the process theorist claim that even though ordinary substances have no *synchronic per se unity*, they do nonetheless possess *diachronic per se unity*. Here is why this solution would resolve the puzzle. If no object has synchronic per se unity, then we can never say at any moment that something is *one*, in the sense of having per se unity. We might be able to say that their diachronic aggregate has per se unity, but remember that we are

assuming a presentist view of time and an perdurantist view of persistence. So, even though the temporal parts of ordinary objects are per se unified, those objects never fully exist in the present, nor in any real sense at all. Consequently, they have only becoming and never being. Now, Socrates says that *nothing is one thing*. The process theorist could understand this claim as proposing that nothing *which is*, is a per se unity. The only per se unities that there could be, never *are*, but are only ever *becoming*. They are excluded from the antecedent of Socrates's negative existential generalization; and so the paradox is resolved. The only *things which are*, are lacking synchronic per se unification, and are (in an important sense) not and never really "one."

#### 4.4. Second Objection: The Flux in Flux

The second objection to the flux doctrine is issued by Socrates from within the dialogue. (The relevant sections of the text are *Theaetetus* 179c-183c, but esp. 181b-182a, 182c-d.) Socrates presents the flux metaphysician with a sort of linguistic paradox. The paradox purports to show that, if one accepts the doctrine of flux, then it would follow that all discourse about the world is impossible (cf. Cornford 1934: 99ff; White 1976; Burnyeat 1990: 48-51; Thaler 2013; Ferrari 2015).<sup>12</sup> But, of course, we can talk about the world around us. Therefore, the flux doctrine must be false. I believe Socrates's linguistic paradox can be stated more fully and precisely in premise-and-conclusion form as so:<sup>13</sup>

1. Suppose that everything is in flux. [Assumption, for *reductio*; cf. 181c, 182c]
2. There are two kinds of change: local motion and alteration. [Premise; cf. 181b-d]
3. If everything is in flux, then everything must change in every way possible at every instant. [Premise; cf. 181e-182a]

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<sup>12</sup> As Cornford (1934: 99) notes: "The Heraclitean Cratylus, who influenced Plato in his young, did in fact reach this conclusion." Aristotle says of it that: "It was this belief that blossomed into the most extreme of the views above mentioned, that of the professed Heracliteans, such as was held by Cratylus, who finally did not think it right to say anything but only moved his finger, and criticized Heraclitus for saying that it is impossible to step twice into the same river; for he thought one could not do it even once" (*Metaphysics* Γ5, 1010<sup>a</sup> 9-14; trans. Ross 1941).

<sup>13</sup> It may be worth comparing Socrates's argument here with the argument presented to him by Parmenides against Platonic formal metaphysics (cf. Plato, *Parmenides*; and Vlastos 1954, 1969).

4. Therefore, everything must change in every way possible at every instant. [From (1) & (3); cf. 182d]
5. So, everything must undergo both local motion and alteration at every moment. [From (2) & (4); cf. 181d-182a]
6. If something is undergoing both local motion and alteration at every moment, then there is no way we can speak of it using any one name. [Premise; cf. 182d-e]
7. Therefore, it follows that we cannot speak of anything by using any names. [From (5) & (6); cf. 183a-b]
8. But we can speak of some things by using some names. [Premise; *implicit*]
9. So this is absurd. [From (7) & (8); cf. 182d]
10. Therefore, everything cannot be in flux—the flux doctrine is false. [From (1), (2)-(9); cf. 183c]

#### 4.5. Reply to the Second Objection

Socrates takes this objection to the account to be decisive against it. I believe, however, that there are at least two replies available to the proponent of the flux doctrine as I have interpreted it. I will only endorse the first of the two responses (§4.5), but I will mention the second anyway (§4.6), because it involves discussion of a fascinating Ursula Le Guin (2003) short science-fictional linguist ethnography, involving a race of people who (apparently, coherently) speak radical Heracliteanese.<sup>14</sup>

*My Reply:* Premise (1) is a potentially problematic statement of the flux doctrine.

1. Everything is in flux.<sup>15</sup>

It is potentially problematic because the doctrine of flux holds not that everything's *in* flux, but rather that everything just *is* flux. For this reason, I recommend the

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<sup>14</sup> See also Le Guin (1975) for an infamous, beautiful objection to utilitarian impartialism. (Many more philosophical insights might still be excavated from her work, I think, including from other stories in Le Guin 2003.)

<sup>15</sup> *Socrates*: “What after all do [the Heraclitans] mean when they say all things are in change?” (181c). *Socrates*: “Very well, then, we will... keep to the point we have in view and ask them this: All things, by your account, are in a perpetual stream of change. Is that so?” *Theodorus*: “Yes” (182c).



Heraclitean say one of two things about it. On the one hand, the Heraclitean might accept the premise but then deny that premise (3) is a genuine consequence of it.

3. If everything is in flux, then everything must change in every way possible at every instant.<sup>16</sup>

As Socrates uses “change” here, he seems to assume *accidental change*, whereby an object that wholly exists at one moment comes to exist at the next moment but has had its properties modified in one way or another. But on my interpretation, there are no accidental changes, for nothing actually endures across time.

In my proposed flux ontology, there are at least four categories of entity. First, there are relations, which perdure across time and never fully exist in the present; consequently, they cannot undergo accidental change. Second, there are temporal parts of those relations, which are wholly present at particular instances in time, but which do not endure into the next; consequently, they cannot undergo accidental change either. Third, there are ordinary objects, which are comprised of relations and perdure across time; consequently, they are never wholly present either and therefore cannot undergo accidental change. And finally, there are temporal parts of objects, which are aggregates of temporal parts of different relations and are wholly present at various instances, but like temporal parts of relations, they do not endure across time; consequently, they cannot undergo accidental change either. As a result, there is nothing in the ontology of the theory at all to undergo accidental change, and so there is nothing that can undergo every kind of change in every way possible. The only kinds of change that this ontology would permit are *substantial change*, whereby one temporal part of something comes to exist or ceases to exist, and *trans-substantial change*, whereby one temporal part ceases to exist and a new one comes to exist, but where the accidents of the first are nonetheless preserved in the latter (cf. Shallo 1916: 189ff). But neither of these species of change is a species of either local motion or alteration, and so the paradox is avoided.

That is one way in which the Heraclitean might accept premise (1) of the paradox while nonetheless avoiding its conclusion. On the other hand, the Heraclitean might, more straightforwardly, simply deny the premise. As we have said, the Heraclitean says not that everything’s *in flux* but rather *is flux*. If this route is taken, then the flux metaphysician can say that Socrates has misrepresented the view and attacked a straw man version of the flux doctrine: The paradox is rhetorically infelicitous and causes no problem for Heraclitean flux metaphysics at all.

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<sup>16</sup> Socrates: “So, since [everything is] to be in change and unchangingness must be impossible anywhere, all things are always in every kind of change” (181e-182a).

#### 4.6. Alternative Reply: Flux Linguistics

I have proposed that the flux metaphysician should either deny premise (1) of Socrates's linguistic paradox—*Socrates has misrepresented the view*—or accept it but then deny premise (3)—*the doctrine does not imply that everything must undergo (accidental) change in every way possible*. I take either tack to be a very moderate way of responding to the argument. But a more radical response might be to deny premise (6).

6. If something is undergoing both local motion and alteration at every moment, then there is no way we can speak of it by using any one name.<sup>17</sup>

*Alternative Reply:* The flux theorist could say that, even though everything is changing in every way at every instant (perhaps even relations too), this does not mean that there is no way to speak of phenomena.

I do not recommend this line of response, but I think it can be made more or less plausible in either one of two ways. The less radical of the two ways to support this radical response to the paradox is to undermine support for the premise. Why might one think that premise (6) is true? One reason it might seem plausible is because of a general assumption throughout much of western philosophy that, in order for language to function properly, the language's linguistic structure must be isomorphic to the structure of reality (cf. Russell 1912, Wittgenstein 1922, 1929). My statement that 'the cat is on the mat' can only be used to describe and interact with reality, if there is an object, corresponding to the noun phrase 'the cat'; there is another object, corresponding to the noun phrase 'the mat'; and there is a relation, corresponding to the verb phrase 'is on.' If this is not so, then my statement has failed its essential linguistic purpose. But now suppose this assumption is false. In that case, premise (6) seems much less plausible. And so, one way of motivating the denial of premise (6) is to provide some good reason for thinking that it is false that language must be isomorphic to the world in order for it to fulfill its essential linguistic functions (cf. Wittgenstein 1953; cf. also Austin 1962, Grice 1967, Baxter & Montgomery 1996).

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<sup>17</sup> Socrates: "Since, however, there is nothing constant here either—the flowing thing does not flow white but changes, so that the very whiteness itself flows and shifts into another color, in order that the thing may escape the charge of constancy in that respect—can we ever give it the name of any color and be sure we are naming it rightly?" Theodorus: "How can that be done, Socrates? Or how can anything else of the kind you mean be called by its right name, if, while we are speaking, it is all the time slipping away from us in this stream?" (182d).

There is a more radical way of motivating premise (6), as well. More radically, the flux metaphysician might say that, even though our language must be isomorphic to the structure of the world to do its job, and even though it is true that we could not speak of things in the world using our *current* linguistic conventions if the flux doctrine were true, this does not mean that we could not devise a *new* language which might more accurately correspond to the basic structure of reality. This would amount to taking up Socrates's challenge to the Heracliteans to institute "some new dialect, ... since, as it is, they have no phrases to fit their fundamental proposition—unless indeed it were 'not even no-how.' That might be an expression indefinite enough to suit them" (183b). Perhaps this revisionary goal might be achieved. I cannot hope to complete that task to its entirety here, but I will suggest one way of doing so before concluding this essay, if for no other reason than that it is an extremely interesting challenge and, to my mind, an even more interesting suggestion.

Science fiction writer Ursula Le Guin (2003) has suggested a language which might be suitable to this end. In her fictional ethnography, Le Guin describes a race of people known as the *Nna Mmoy*, who have a very peculiar language, which is called the same. I'll quote her description of it at some length, and then I'll say why I think an extreme sort of Heraclitean might find the *Nna Mmoy* language suggestive. Le Guin's (2003: 161-172) narrator says of the language that:

- i. Though their monosyllabic language is melodious to the ear, the translomat has so much trouble with it that it cannot be relied upon even for the simplest conversation...
- ii. A look at the written language may yield some light on the problem. Written *Nna Mmoy* is a syllabary: each of its several thousand characters represents a syllable. Each syllable is a word, but a word with no fixed, specific meaning, only a range of possible significances determined by the syllables that come before, after, or near it. A word in *Nna Mmoy* has no denotation, but is a nucleus of potential connotations which may be activated, or created, by its context. Thus it would be possible to make a dictionary of *Nna Mmoy* only if the number of possible sentences were finite...
- iii. Texts written in *Nna Mmoy* are not linear, either horizontally or vertically, but radial, budding out in all directions, like tree branches or growing crystals, from a first or central word which, once the text is complete, may well be neither the center nor the beginning of the statement. Literary texts carry this polydirectional complexity to such an extreme that they resemble mazes, roses, artichokes, sunflowers, fractal patterns...

- iv. It appears that in the language of the Nna Mmoy, not only the choice of word—noun or verb, tense, person, etc.—but the meaning of each word is continuously modified by all the words that precede or *may follow* it in the sentence (if in fact the Nna Mmoy speak in sentences)...
- v. My friend Laurie says that he heard the Nna Mmoy use a word in connection with [their] ruins: *nen*. As well as he could figure out, the syllable *nen*, variously modified by the syllables that surround it, may signify a range of objects from a flash flood to a tiny iridescent beetle... But then, it's not certain that anything has a name in Nna Mmoy...
- vi. It might help to think of it this way: We talk snake. A snake can go any direction but only at one time, following its head. They talk starfish. A starfish doesn't go anywhere much. It has no head. It keeps more choices handy, even if it doesn't use them...
- vii. Every statement [in Nna Mmoy] is transparent to other possible statements because the meaning of every word is contingent on the meaning of the words around it. Which is why you probably can't call them words...
- viii. The range of meanings of a syllable isn't infinite, of course, but I don't think you could make a list of possible or potential meanings. Not even a long one, like the entry for a syllable in Chinese dictionaries. A spoken Chinese syllable... may have dozens of meanings; but it's still a word, even though its meaning depends to some extent on context, and even if it takes fifty different written characters to express the different meanings. Each different meaning of a syllable is in fact a different word, an entity, a pebble in the great riverbed of language...
- ix. A Nna Mmoy syllable only has one written character. But it's not a pebble. It's a drop in the river... Learning Nna Mmoy is like learning to weave water...
- x. As far as I can tell, a Nna Mmoy does not have a name. They address one another by ever-varying phrases which seem to signify both permanent and temporary relationships of consanguinity, of responsibility and dependence, of contingent status, of a thousand social and emotional connections... I could point to myself and say [a name], but what relationship would that signify?

The reason I think the Nna Mmoy language might be a suitable “dialect” for the radical Heraclitean flux metaphysician is because, like objects within the flux ontology, no word is of any one, definite sort (cf. 152d). The meaning of every word is ultimately just a set of partial relations, possible and actual, just as the Heraclitan sees ordinary objects in the world as just a set of partial relations, possible and actual.<sup>18</sup> Heraclitus says that our existence in the world is like trying to step into the same river twice; just so, Le Guin says that speaking Nna Mmoy is like “weaving water,” since every word is not so much like “a pebble” as it is like “a drop in the river.” The structure of the radical flux metaphysics and the structure of the Nna Mmoy language, then, would seem (at least superficially) to be isomorphic with one another. I won’t push this suggestion any further. I’ll leave that to be further developed by the flux doctrine proponent who would rather deny premise (6) of Socrates’s argument, rather than premise (1) or (3), as I have recommended.

## 5. Concluding Summary

In this essay, I set out to complete two tasks. In the first part of the paper, I offered an original interpretation of Heraclitan flux metaphysics, as it is presented in Plato’s *Theaetetus*. I have interpreted it as a commitment to three sub-theses of multifarious philosophical varieties: ordered structuralism, perdurantism, and presentism. Then, in the second part of the essay, I attempted to defend the doctrine of flux from two objections. The first was a hermeneutical challenge to account for what Socrates could mean in saying of the doctrine that it supposes that “nothing is just one thing.” I have suggested that the Heraclitan is not denying that anything is one unit, but only that anything has (synchronic) per se unity. This preserves the internal coherence of my interpretation. And the second was Socrates’s linguistic paradox. Socrates argues that if one accepts the flux doctrine, then all meaningful language would break down. I have responded that Socrates’s argument misrepresents the flux doctrine in its initial

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<sup>18</sup> Yuen (2012) similarly writes that: “Nna Mmoy asks the reader to imagine a completely different approach of thinking and relating to the world. The meaning of each syllable depends on both position (where it is embedded in the sentence), and relationship (connections that it has with the other words in the sentence). The language naturally affects how the Nna Mmoy people relate to one another; they have no names, but are identified by ‘ever-varying phrases that seem to signify both permanent and temporary relationships of consanguinity, of responsibility and dependence, of contingent status, of a thousand social and emotional connections’... What Le Guin has created is a language grounded in the principles of ecology. Connections form the foundations of meaning; the people view the world through a relational lens. Individual words are important to the whole, but by themselves and without context, they have no concrete meaning” (cf. also Godlovitch 1998).

characterization of it, and that the doctrine, as I interpret it, does not imply the collapse of meaningful language. Finally, even though I did not endorse this tack, I also suggested a way in which the Heraclitan might accept Socrates's characterization of the doctrine but attempt to show that meaningful language might still nonetheless be preserved, even if that might well require a radical Le Guinian revision to our current linguistic practices. I conclude, therefore, that the doctrine of flux, as it is presented in Plato's *Theaetetus*, is a coherent metaphysical theory, and it is not decisively refuted in the text.<sup>19</sup>

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<sup>19</sup> For useful discussion on this topic and those related to it, my thanks to Matt Evans, Ross Preuss Greene, and Robert Koons. (Note: This essay is almost certainly to be *grundlegung* for a future essay on hylosystemist physical cosmology. I hope very much my friends shall help me again then too <3.)

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