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## Pre-Cosmic Necessity in Plato's *Timaeus*

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### Abstract

One aim of this paper is to bring to the surface the problems with the traditional, non-literal interpretation of the pre-cosmos in the *Timaeus*. Contrary to this traditional interpretation, I show that Necessity is an ateleological cause capable of bringing about the events in the pre-cosmos, and that Intelligence is a teleological cause that produces effects only for the sake of maximizing the good. I conclude that there are no grounds for supposing that Intelligence is a causal force operating in the pre-cosmos, and that the account of the pre-cosmos should be taken literally: it is an account of the works of Necessity alone.

In the cosmological account of the *Timaeus*, the cosmos is said to be of "mixed birth": it is the "offspring" of the union of both Intelligence and Necessity (48a1–2).<sup>1</sup> How one should interpret Intelligence and Necessity is a matter of debate among scholars. The focal point of the debate is a passage that *Timaeus* implies is an account of the works of Necessity in the absence of Intelligence. This passage consists of a description of the "pre-cosmos", a disorderly state of affairs that existed "before the Heavens came to be" (48b5). The text suggests that Necessity reigns in the pre-cosmos, and that the processes in the pre-cosmos are uninfluenced by Intelligence, "indeed in the condition one would expect thoroughly god-forsaken things to be in" (53b2).

Some scholars<sup>2</sup> argue that the passage should not be taken literally, and that it is not the case that processes that take place in the pre-cosmos are caused by Necessity alone without the influence of Intelligence. This is

<sup>1</sup> All quotes from Plato's *Timaeus* are from Zeyl 2000. Zeyl renders  $\nu\omicron\upsilon\varsigma$  as "Intellect". For the purposes of this paper I will use "Intelligence".

<sup>2</sup> Especially Silverman 1992 and Johansen 2004. Lennox 1985 holds that Intelligence at every level persuades Necessity, a thesis which would also support Silverman's and Johansen's interpretation of the pre-cosmos, though Lennox does not address the

because, they claim, the processes that take place in the pre-cosmos are possible only with the aid of Intelligence. I contend that such a view rests on two unwarranted assumptions about Necessity and Intelligence *qua* causes. The aim of this paper is to clarify our understanding of Necessity and Intelligence via a critical examination of this non-literal view. What emerges from this investigation is an interpretation of Intelligence and Necessity that ultimately undermines the thesis of the non-literal view: I show that Necessity is an ateleological cause capable of bringing about the events in the pre-cosmos, and that Intelligence is a teleological cause that produces effects *only* for the sake of maximizing the good. I conclude that there are no grounds for supposing that Intelligence is a causal force operating in the pre-cosmos, and that the account of the pre-cosmos should be taken literally: it is an account of the works of Necessity alone.

The first obstacle facing supporters of the non-literal view is that their interpretation is at odds with the text. At 47e–53c Timaeus announces that he must give an account of the works of Necessity. He states:

I have presented what has been crafted by Intellect.<sup>3</sup> But I need to match this account by providing a comparable one concerning the things that have come about by Necessity. For this ordered world is of mixed birth: it is the offspring of a union of Necessity and Intellect. ... So if I'm to tell the story of how it really came to be in this way, I'd also have to introduce the character of the Wandering Cause – how it is its nature to set things adrift. (47e–48b)

Here Timaeus indicates that the story that follows, which is the account of the pre-cosmos, must include an account of Necessity, also called the “Wandering Cause”. This is because the world is of “mixed birth”; it is the “offspring of a union of Necessity and Intellect” (48a).

The fact that there is a something in addition to Intelligence is established earlier in the dialogue, when Timaeus says that the Divine Craftsman (who represents Intelligence) “took over all that was visible, not at rest but in discordant and disorderly motion” (30a1–2). This indicates that there is a visible realm that the god takes over. He does not create the cosmos *ex nihilo*; rather he constructs the cosmos from things that are already present. This is confirmed later in the passage beginning with the quote above. His announced investigation of the character of Necessity begins with a study of the “intrinsic nature” of fire, water, earth, and air “prior to the heaven's coming to be” (48b7 emphasis mine). He describes the state of affairs prior to the heaven's coming to be (the pre-cosmos) in

issue of the pre-cosmos specifically. Traditionally, Taylor 1987 endorses the view that Necessity is impotent (291–293).

<sup>3</sup> Zeyl 2000 translates *νοῦς* as “Intellect”; I shall translate it as “Intelligence”.

which the “four kinds”,<sup>4</sup> earth, air, fire, and water are in perpetual motion. It is clear that the Divine Craftsman (Intelligence) did not create this state of affairs; rather, it exists prior to the Divine Craftsman's intervention.

That the pre-cosmos is a realm in which the Divine Craftsman is absent is confirmed throughout the passage. In the middle of the section, Timaeus says:

Let this then be a summary of the account I would offer ... There are being, space, and becoming, three distinct things that existed *even before the heavens came to be*. (52d3–6, emphasis mine)

At the end of the section, Timaeus summarizes: “Indeed it is a fact that before this took place the four kinds all lacked proportion and measure ... they were indeed in the condition one would expect *god-forsaken things to be*” (53b2, emphasis mine). The Divine Craftsman “find[s] them in their natural condition” (53b3) and then “fashion[s] these four kinds to be as perfect and excellent as possible, *when they were not so before*” (53b8, emphasis mine). Timaeus continues with an account of the Divine Craftsman's “fashioning” of these four kinds “to the degree Necessity was willing to comply obediently” (56c5). The text clearly indicates that the Divine Craftsman is not at work in the pre-cosmos. The events in the pre-cosmos are not designed, controlled, or influenced by any Intelligence. The text indicates that the pre-cosmos is a realm in which Intelligence is absent.

Even though this is the most natural reading of the passage, scholars such as Allan Silverman and Thomas Johansen argue that the text should not be taken literally, because, as they contend, it is impossible for the events in the pre-cosmos to take place without Intelligence's intervention. These arguments rest on certain assumptions about the Platonic notions of Necessity and Intelligence; namely that Necessity is incapable of being responsible for any kind of cause-and-effect process, and that Intelligence is required for such processes. Ultimately, I shall demonstrate that interpretations such as Silverman's and Johansen's are misguided.

Intelligence is understood as representing the teleological cause of the cosmos. Teleology is interpreted differently among philosophers, and so it is crucial to examine Plato's notion of teleology so as not to mischaracterize Plato's teleology in terms of another philosopher's conception. Most importantly, Plato's teleology is not equivalent to Aristotle's final cause. The first account of Plato's teleology comes in a passage in the *Phaedo*, in which Socrates describes the type of explanation (*aitia*) that he deems

<sup>4</sup> Timaeus indicates that the Divine Craftsman gave the four kinds “shape and number”, thus producing the four elements of the cosmos: earth, water, air, and fire. Since the four divinely crafted cosmic elements are “as perfect and excellent as possible, when they were not so before” (53b9–10), I distinguish between the four divinely crafted cosmic “elements” and the “four kinds”, their pre-cosmic progenitors.

ideal for accounting for the processes of the natural world: generation, existence, and destruction. Socrates favors an imagined account according to which a Divine Intelligence “orders and is the reason for everything” (97c1).<sup>5</sup> For example, he expects this type of account to hold that the reason the heavenly bodies act the way they do is because an intelligent designer designed them to act that way (98a1–5).

Socrates' ideal type of explanation, the teleological explanation, is more complex than merely an explanation in terms of intelligent design. In a teleological explanation, the state of affairs in question obtains because (1) an agent *thinks it best* to bring about the state of affairs and (2) the agent himself is the “efficient cause” – he brings about that state of affairs. In other words, a teleological explanation is one in which the agent's judgment of what is best and his corresponding actions are the reasons why a state of affairs obtains. In the case of Socrates' imagined intelligent designer of the cosmos, Socrates says:

And I thought he'd inform me, first, whether the earth is flat or round, and when he'd inform me, he'd go on to expound as the reason why it must be so, telling me what was better – better, that is that it should be like this. (97d8–e1)

The reason the earth is a particular shape is that an intelligent agent thought that shape to be the *best* shape, and so he designed it accordingly.

Socrates extends this to the explanation of his sitting in jail. Given that he is an intelligent agent, and the Athenians who condemned him are intelligent agents, the ideal explanation of his actions would explain the reason he is staying in jail in terms of the judgments of the intelligent agents involved. He concludes that the reason he is staying in jail is that Athens *thought it best* to sentence him to death and *he thought it best* to accept this sentence and remain in jail. A Platonic teleological explanation is as follows: it explains *how* a state of affairs obtains in terms of an intelligent agent as the efficient cause, and most importantly it attributes the reason *why* the state of affairs obtains to the intelligent agent's judgment that the state of affairs is *best*.

Socrates adds that while it is true that he could not be sitting in jail if it weren't for the movements of his bones and sinews, a mechanistic explanation in terms of his bones and sinews is merely an account of auxiliary causes – causes without which the teleological cause could not obtain. These auxiliary causes are ateleological – they produce effects without regard to a particular purpose in mind. Socrates illustrates this point when he says that mechanistic movements of his bones and sinews could have just as easily caused him to flee to Megara rather than bring him to jail. The mechanistic causes act without purpose. The “proper” (99a1) explanation is

<sup>5</sup> All quotes from the *Phaedo* are from Gallop 1975.

the teleological one because it explains a state of affairs in terms of the reason why the agent brought that state of affairs about. The “reason why” is always the same: it is that the agent thought that state of affairs was best.

Platonic teleological explanations cite an agent's judgment that something is best as the reason why it obtains. Since the explanation is in terms of a *judgment* that something is best, it is most natural to interpret teleological explanations in terms of an intelligent agent who forms that judgment. An interpretation of the cosmological account of the *Timaeus* as a teleological one naturally suggests that the Divine Craftsman be taken literally as an agent who makes such judgments.<sup>6</sup> For example, it is said that the Divine Craftsman reasoned that intelligence is better than unintelligence, and so he put intelligence in soul, and soul into the body of the cosmos. The teleological explanation for why the cosmos has an intelligent soul is that the Divine Craftsman thought it *best* for the cosmos to have an intelligent soul.

The Divine Craftsman is not *merely* intelligent, like Socrates or the Athenians – the Divine Craftsman is supremely good such that *all* of his acts are directed towards the goal of maximizing the goodness of the cosmos:

Men of wisdom will tell you that this, more than anything else, was the most pre-eminent reason for the origin of the world's coming to be. The god wanted everything to be good and nothing to be bad so far as possible. (29e8–30a2)

In the case of the Divine Craftsman, who is supremely good, he *always* brings about states of affairs because he believes them to be the best possible. The force called “Intelligence” represents the Divine Craftsman as well as his demi-gods. I have already shown that Platonic teleological explanations cite as the reason why a state of affairs obtains the fact that an intelligent agent thought the state of affairs is *best*. I conclude that Intelligence in the *Timaeus* is teleological in the following way: it represents agents, the Divine Craftsman and his demi-gods, who bring about results because they think those results are best. The Divine Craftsman and his demi-gods are also efficient causes: they *bring about* the particular arrangements that they believe are best for the cosmos.

I have explained the role of the Divine Craftsman as a teleological agent; now I add to my account of the Divine Craftsman a second crucial characteristic: The Divine Craftsman is a craftsman, he is not a creator-

<sup>6</sup> For a defense of the view that the Divine Craftsman should be taken literally as an agent separate from his creation, see Johansen 2004, 69–86. For the purposes of this paper, I do not discuss issues regarding the ontological status of the Divine Craftsman *qua* agent in relation to other ontological entities in the *Timaeus*. These debates do not affect my argument here. The important point is not that the Divine Craftsman is an agent, but rather that he (and “Intelligence”) represent a Platonic teleological cause – one that acts only for the sake of maximizing the good in the cosmos.

God capable of creating things *ex nihilo*. Timaeus tells us that the Divine Craftsman “took over all that was visible, not at rest but in discordant and disorderly motion” because “the god wanted everything good ... so far as possible” (30a1–2). This indicates that there is a visible realm that the god takes over; he does not create the cosmos *ex nihilo*, rather he constructs the cosmos from things that are already present. The job of the Divine Craftsman is to *craft* an orderly universe by arranging a disorderly state of affairs into an arrangement that is best. Another example illustrating the point that the Divine Craftsman *constructs* and *crafts* rather than *creates* is the account of his work with motion. He brings into being the rotation of the World Body (34a) and the rotary motions<sup>7</sup> of the heavenly gods (40b). But he does not “bring into being” these motions by *creating* motion where there was no motion before. Rather, he takes over already-existing types of motion and uses them to achieve his teleological goals. For the World-Soul, he removes six chaotic motions from it, leaving it with the one rational motion. “He took from the World-Soul all the other six motions and gave it no part in their wanderings” (34a4–5). Timaeus describes the Divine Craftsman’s arranging of motions with regard to the gods as follows: “But in respect of the other five motions he made each god motionless and still, in order that each might be as perfect as possible” (40b2–4). Notice again that he is not creating motion or immobility; he is *arranging* the types of motions that already exist. As a teleological agent, he is arranging things according to what arrangement he thinks is best. I conclude the following: First, that Intelligence is a cause that is responsible for arrangements that are brought about for a particular purpose: that of maximizing the goodness of the cosmos; and, secondly, that Intelligence brings these arrangements about by crafting and manipulating pre-existing phenomena.

Timaeus tells us a third thing about Intelligence: Intelligence is not the only force at work in the cosmos; the cosmos is a “mixed birth” of Intelligence and Necessity. The main interpretations of Necessity can be categorized into three positions: (1) Necessity represents chaos and disorder that Intelligence can overpower altogether. It is not a causal force, rather it is more like a state of affairs; (2) Necessity is a causal force representing an ateleological cause, but Intelligence *always* “persuades” it so that it serves the ends of the intelligent agent; (3) Necessity is a causal force representing an ateleological cause which is *often* “persuaded” by Intelligence, but which is sometimes resistant to the persuasion of Intelligence and instead *constrains* the operations of Intelligence.

Allan Silverman seems to subscribe to interpretation (1), according to which Necessity is always overpowered by Intelligence, and incapable of acting as an independent cause. He writes:

There is, I think, a more intractable difficulty facing those who cite the pre-cosmic chaos as a realm where Necessity is the sole cause. It is hard to see how in a chaotic environment there can be any causes and effects. Put somewhat differently, it is hard to reconcile the notions of cause and explanation with the notion of chaos and random disorder.<sup>8</sup>

Silverman notes the difficulty in reconciling the notions of cause and explanation with the notion of chaos and random disorder, implying that Necessity represents chaos and random disorder. At first blush, the text seems to support his interpretation of Necessity. Plato refers to Necessity as the “wandering cause” (48a9) and describes it as “destitute of reason” (46e8). Necessity is characterized as a force that produces “sundry effects at random and without order” (46e3–6). It may seem reasonable to conclude that Necessity cannot be the sole cause of things because it is “incapable of any plan or intelligence for any purpose” (46d3). As many scholars<sup>9</sup> have noted these descriptions of Necessity do not preclude the possibility that Necessity is a determinate cause that produces regular effects. Necessity “produces sundry effects at random and without order” because it does not cause things for a particular purpose. It is unintelligent in that it is ateleological: it does not cause something for the sake of maximizing the good or for any other purpose. It is a purely mechanical cause. As such, its *effects* may be disordered. For example, the wind causes the fallen leaves to disperse, but the leaves disperse in a random, disordered pattern. The effect might be disorderly; it might turn a pile of raked leaves into a scattered mess on the lawn. In fact, one might describe the results as “chaotic”. Chaos, however, is not a state that lacks a cause. Chaos might simply refer to a disorderly *state*, but one that was nevertheless *caused*. There is nothing that suggests that Necessity is incapable of acting as a cause that produces effects. This resolves Silverman’s difficulty in “reconciling the notions of cause and explanation with the notion of chaos and random disorder” (99).<sup>10</sup>

Silverman’s interpretation of Necessity impacts his interpretation of the pre-cosmos. His unwarranted assumption about Necessity leads him to the conclusion that only Intelligence can be responsible for cause-and-

<sup>8</sup> Silverman 1992, 99.

<sup>9</sup> Morrow 1965 makes this point (421–437). Johansen 2004 offers a particularly useful defense of this point, though he does not hold that Necessity is at work in the pre-cosmos (93–95). For an excellent explanation of the characterization of Necessity as chaotic, see Mason 2006.

<sup>10</sup> Silverman 1992.

<sup>7</sup> For this particular example I am indebted to Mohr 2005, 114.

effect processes, including those that take place in the pre-cosmos. Once again, this is at odds with a literal reading of the pre-cosmos passage. Timaeus' account of the pre-cosmos describes the interactions of the four kinds, "traces" (53b2) which reflect the Forms: Earth, Water, Air, or Fire. These four kinds transmit in a cycle of transforming into each other:

First we see the thing that we have just now been calling water condensing and turning into stones and earth. Next we see this same thing dissolving and dispersing, turning to wind and air; and air, when ignited, turning into fire. And then we see fire being condensed and extinguished and turning back to the form of air, and air coalescing and thickening and turning back into cloud and mist. When these are compressed still more we see them turning into flowing water, which we see turning into earth and stones once again. In this way then they transmit their coming to be one to the other in a cycle. (49b9–c9)

Throughout the description of the pre-cosmos, Intelligence is not mentioned at all. Timaeus announces that the Divine Craftsman comes on the scene and takes over the pre-cosmos:

Indeed it is a fact that before this took place the four kinds all lacked proportion and measure, and at the time the ordering of the universe was undertaken, fire, water, earth, and air initially possessed certain traces of what they are now. They were indeed in the condition one would expect thoroughly god-forsaken things to be in. (53b1–3)

On the literal reading, Intelligence is clearly absent from the pre-cosmos.

Scholars such as Silverman and Johansen<sup>11</sup> argue, based on a conundrum about the shapes of the four kinds, that the literal reading should be rejected and that Intelligence must be at work in the pre-cosmos. Timaeus says:

So, finding them in this natural condition, the first thing the god then did was to give them their distinctive shapes, using forms and numbers. (53b1–5)

On a *prima facie* reading, it appears to be the case that the Divine Craftsman assigns geometrical configurations to each of the four kinds thereby crafting the cosmic elements fire, air, water, and earth. After describing the various shapes these elements take on, Timaeus once again describes a process of the elements transforming into each other:

The following account of their transformations is the most likely: when earth encounters fire and is broken up by fire's sharpness, it will drift about ... When water is broken up into parts by fire or even by air, it could happen that the two parts recombine to form one corpuscle of fire and two of air. And the fragments of air could produce, from any single particle that is broken up, two fire corpuscles ... (56d1–e2)

This time, the cause of the elements' properties and behaviors arise from their geometrical configurations. For example, fire heats things by cutting them up using the sharp points of its tetrahedral shape. This gives rise to the following conundrum: If the elements have the properties they do because of their geometrical shapes, how is it that the four kinds, which were not yet shaped by the Divine Craftsman, acted similarly, such as fire heating up water in the cycle of transformation?

Some scholars conclude from this that the four kinds must have the geometrical shapes that give rise to these properties, and assume that Intelligence must have given them these shapes. These scholars conclude that Intelligence is acting in the pre-cosmos. For example, Silverman explains his view as follows:

The reason Intelligence is needed is that the explanations of these processes will depend upon the geometrical configurations of the matter involved. These geometrical configurations, in turn, are those produced by the Demiurge.<sup>12</sup>

Johansen takes the following position:

On my suggestion we would expect Intelligence to operate alongside Necessity at each level of composition. Necessity is a separate explanatory principle because it refers back to those properties the materials have in virtue of the lower level of composition. But this is compatible with the materials having been composed at the lower level by the gods.<sup>13</sup>

Both of these scholars suppose that the behavior of the four kinds of the Receptacle is due to their geometrical arrangement, and then assume that the Intelligence must be responsible for the geometrical arrangement of the four kinds. While neither scholar acknowledges this, both of their conclusions are based on the following assumption: having a certain geometric configuration is possible *only* if Intelligence has bestowed it upon a body. From this, Johansen concludes that Intelligence (represented by the lower gods) shapes the elements at even the lowest level of composition – the four kinds of the pre-cosmos. Silverman also concludes that the four kinds must have geometrical configurations bestowed by Intelligence. Ultimately, on neither of these views is there a domain in which Intelligence is not operating. According to Johansen and Silverman, the events in the pre-cosmos are possible only by virtue of the geometrical configurations of the four kinds, and the configurations are caused by Intelligence.

In broad strokes, what these views assume is that any instance of regularity or organization must be a result of Intelligence, and that Necessity is only capable of producing chaos. I shall argue that these views represent a misguided interpretation of Intelligence and Necessity. Previously, I

<sup>11</sup> Johansen 2008, 481.

<sup>12</sup> Silverman 1992, 105.  
<sup>13</sup> Johansen 2008, 481.

showed that Intelligence is a cause that *only* produces effects for the sake of a goal or purpose: that of maximizing the good. I also demonstrated that Necessity is plausibly interpreted as a determinate cause that produces effects. Necessity is “disorderly” and “wandering” only in the sense that it is areteleological: it causes things without regard to any particular purpose. These interpretations of Intelligence and Necessity call into question Johansen’s and Silverman’s assumption that having a certain geometric configuration is possible *only* if it has been imparted to a body by Intelligence. In the particular case of the shaping of the elements, the Divine Craftsman is described as assigning a geometrical shape to each element so that each will be “as perfect and excellent as possible” (53b9) so as to make “the most excellent four bodies that can come to be” (53e1–2). He gives fire a certain geometrical configuration because that configuration is the *best possible* configuration. Here, he causes something to have a particular shape for the sake of maximizing the good in the cosmos. Since this is a case in which a cause operates intentionally for the sake of maximizing the good, we can rightly attribute it to Intelligence.

But is it the case that having a particular shape always maximizes goodness? No. It is possible that the four kinds have shape for no particular reason. Therefore, it is plausible to suppose that the four kinds already have the geometrical shapes of the corresponding four elements, but that they have these shapes for no particular purpose. This possibility allows us to dissolve the conundrum: Perhaps it is the case, for example, that the pre-cosmic fire cuts up things in the process of transformation via the sharp points of its tetrahedral shape.<sup>14</sup> That the pre-cosmic fire acts in this way is a brute fact about pre-cosmic fire. We can attribute brute facts to Necessity. Perhaps it is the case that when the Divine Craftsman comes on the scene, he simply modifies the geometrical shapes of the four kinds so that each shape is the best possible (i.e., as close as possible to a perfect instantiation of that shape) for the sake of maximizing the good in the cosmos.

The view that the four kinds transform into each other *prior* to the intervention of Intelligence has been defended by both Mary Louise Gill<sup>15</sup> and Richard Mohr. Mohr points out that the translation of 53b4–5, τὰ τεταρτάων διεργηματαὶο εἶδῶς τε καὶ ἀριθμοῖς to “The god then, began by giving [the pre-cosmic kinds] a distinct configuration by means of shapes

and numbers”, is misleading on three counts.<sup>16</sup> First, on this translation, the word διεργηματαὶο is translated as “gives a distinct configuration”, while at 50c3 the same word is used to describe the pre-cosmic contents of the receptacle, which “form some kind of pattern, however vague in outline and irregular”.<sup>17</sup> Second, the word εἶδῶς is translated in the later passage as “shapes”, whereas the word μορφαί, which means the same thing, is translated earlier in the description of the pre-cosmos (52d6) as “characters”. Third, the traditional translation interprets the datives as datives of instrumental usage, which suggest that the Divine Craftsman is manipulating the pre-cosmic kinds. As an alternative, Mohr suggests that the datives are datives of respect. On this interpretation, the alterations of the pre-cosmic kinds are alterations *with respect* to number. Taking Mohr’s three points together, we might conclude that the statement “The god then, began by giving [the pre-cosmic kinds] a distinct configuration by means of shapes and numbers” (53b4–5), is misleading because it could be translated as “The god began by ordering [the pre-cosmic kinds] with respect to character and numbers”. Because of these three discrepancies in translation, we need not read the passage as asserting that the Divine Craftsman *created* number and shape where there was no number and shape before. Instead, we can plausibly suppose that this passage suggests that the Divine Craftsman modifies the pre-existing shape of the pre-cosmic four kinds *with respect* to shape and number. Since Intelligence acts as a teleological cause, it is plausible to suppose that the Divine Craftsman alters each shape so that each is the *best possible* instantiation of that shape.

On an alternative interpretation, Gill argues that the four kinds are ultimate simples combining and separating by chance in the Receptacle.<sup>18</sup> Random compounds of simples will produce a likeness of fire, air, earth, or water by chance. This is supported by Timaeus’ later description of the pre-cosmos as a state in which things are in their disordered state because they lack proportion, save by *chance* (69b6). The Divine Craftsman then imposes a stable organization on these random arrangements so that the arrangement resulting in fire, for example, will remain stable as fire. Once again, on this interpretation, the Divine Craftsman does not *create* shape and number where there was no shape and number before. He simply stabilizes the arrangements that already occur in the pre-cosmos.

It is not my aim to develop a particular interpretation of the status of the pre-cosmic kinds; rather, my point is that the text allows for an interpretation according to which the four kinds are capable of taking on the

<sup>14</sup> Or, the pre-cosmic triangles by chance join together to form the shape that gives rise to fire. It is not my intention to commit myself to a particular view about the nature

of the pre-cosmic “four kinds”; what I wish to emphasize is that *if* they have a particular shape, it does *not* follow that this shape was bestowed upon them by Intelligence. Having shape is a state that can be caused by an areteleological cause.

<sup>15</sup> Gill 1987.

<sup>16</sup> Mohr 2005, 114.

<sup>17</sup> Cornford 1937, 185 n. 1.

<sup>18</sup> Gill 1987, 51–52.

geometrical shapes needed for the process of transformation to take place. Most importantly, I wish to emphasize that the fact that something has a shape is not necessarily an indication that Intelligence gave it shape. Things can have shapes by Necessity, or, on Gill's view, shapes can arise due to chance arrangements.<sup>19</sup> I conclude that Silverman's assertion that the geometrical configurations of the four kinds must have been Demiurgally caused is ungrounded.

Silverman makes an even stronger objection to the notion that Necessity can operate alone:

[T]o conceive of them, however, requires that one already have, for specifying events in the chaos, notions that are available only after Demiurgic intervention. If we try to do without the notions of order and regularity, and of Fire, Water, etc. made possible by Intelligence, then we cannot identify the random disordered events or states of affairs which Necessity is alleged to cause, or conceive of the two events which are to stand in any kind of temporal order.<sup>20</sup>

Here, Silverman assumes that the following *must* be caused by Intelligence and *cannot* be caused by Necessity: (1) order and regularity; (2) the natures of fire, water, etc.; (3) any sequence of temporal order. In response to (1), I have already shown that there is nothing in the text that precludes the possibility that Necessity can be a regular and determinate cause of a process. In response to (2), I have shown that, even if it is the case that fire, water, etc., of the pre-cosmos behave the way they do by virtue of their respective shapes, one needn't invoke Intelligence as the cause of these shapes. The four kinds could have shapes that give rise to certain characteristics, but because *having* a shape serves no teleological purpose, there is no warrant in assuming that the four kinds have these shapes because Intelligence bestowed shapes upon them. In short, the four kinds can have characteristics prior to Intelligence's intervention.

With regard to (3), Silverman argues that we cannot conceive of two events that stand in any kind of temporal order, such as an effect temporally following from a cause, in a state in which Intelligence is absent. This is related to both assumptions (1) and (2). Silverman denies that there can be cause-and-effect processes taking place in time in a state that is chaotic, random and disorderly. Moreover, according to Silverman, the only non-chaotic and non-random state is one caused by Intelligence. I shall demonstrate that contrary to Silverman's objection, there are temporal causal processes that take place in the pre-cosmos in the absence of Intelligence. These processes are not designed for the sake of maximizing the good or for any other purpose; they are areteleological. Since they are areteleological, they cannot be attributed to Intelligence. These causes are the purely me-

chanical<sup>21</sup> causes of Necessity. I draw this conclusion because none of the states of affairs were caused in order to maximize the good. They are value-neutral, and thus it is inappropriate to attribute their causes to Intelligence.

In particular, there are two "principles" of motion that are responsible for the processes in the pre-cosmos: The principle that heterogeneity of powers causes motion, and the principle that like kinds will tend towards like. According to Silverman, motion is possible only because the Divine Craftsman created each of the elements such that each is differentiated from the other. This differentiation allows for the heterogeneity of powers, which is said to cause motion. Thus, on Silverman's view, Intelligence is at least a pre-condition of motion: if it were not for Intelligence's constructions the conditions that allow for motion would not have obtained:

This inequality, in turn, appears to have as its cause the fact that Demiurgically created triangles can combine to form triangles of different sizes. By Plato's own lights, then, we apparently must appeal to the Intelligent causes to explain the source of the irregularity which could cause the motions of matter.<sup>22</sup>

In other words, the "principles" of motion mentioned in the description of the pre-cosmos are principles that can only apply to bodies with determinate characteristics and varying sizes. According to Silverman, the only bodies that satisfy this description are bodies that have been ordered – and the only ordered bodies are the elements the Divine Craftsman creates. Here, Silverman is assuming that a body can have order only if Intelligence has bestowed order upon it, an assumption I have already shown to be unwarranted. He concludes from this that the principles of motion are only applicable to the elements created by the Divine Craftsman.

<sup>21</sup> I use the term "mechanical" as a contrast to "teleological". By "mechanical cause", I mean the type of cause that Socrates rejects in the *Phaedo* (96b–99d): one that produces effects without any inherent goal. Mechanical causes are law-like: they operate regularly as a result of some condition. Though a mechanistic explanation of nature, such as the account that a heterogeneity of kinds of particles in a plenum causes motion among those particles, may appeal to a fact about *matter*; namely, that it has the characteristic to act in this way, I do not identify these types of explanations as *material explanations*. This is because the term "material explanation" has a specific description according to Aristotle. Because it is unclear as to what Plato considers to be *matter*, it is inappropriate to assert that there are material causes in Plato's account without explicating the relationship between Aristotle's account of material causes and Plato's enigmatic ontology for matter, a project that is beyond the scope of this paper. For current purposes, "mechanistic causes" are deterministic causes that are areteleological. For a fuller discussion of mechanism, see Hankinson 1998, 84–87; and Berryman 2003, 349–369.

<sup>22</sup> Silverman 1992, 102–103.

<sup>19</sup> *Ibid.*, 52.

<sup>20</sup> Silverman 1992, 99.

But Silverman's claim is even stronger than this. Recall that he says:

If we try to do without the notions of order and regularity, and of Fire, Water, etc., made possible by Intelligence, then we cannot identify the random disordered events or states of affairs which Necessity is alleged to cause, or conceive of the two events which are to stand in any kind of temporal order.<sup>23</sup>

Notice that on Silverman's view, it is not merely the case that Intelligence is necessary for creating the conditions that allow for motion; more strongly, Intelligence is somehow necessary for *any* sort of *process* of motion to take place. For without Intelligence, we cannot "conceive of the two events which are to stand in any temporal order."<sup>24</sup> According to Silverman, without Intelligence, there is no temporal order, and so motion is impossible. On this view, the principles of motion can obtain only in conditions that have been intelligently designed.

With regard to the motion that takes place in the pre-cosmos, I must pause and address a traditional objection, even though it is not one Silverman raises. In the *Phaedrus* (245c9) and *Laus* X (896b1) it is said that *soul* is the source of all motion. This is inconsistent with a literal reading of the pre-cosmos passage of the *Timaeus*, which describes mechanistic causes for motion. The pre-cosmos is not said to have a soul that causes its motions; rather, there are "secondary causes ... belonging to things that are moved by others and that set still others in motion by Necessity" (46c1-2). Some scholars attempt to reconcile this apparent inconsistency among texts regarding what causes motion by proposing that a soul of some kind is indeed the cause of motion in the pre-cosmos.<sup>25</sup> All of these views face the objection that there is no textual support in the *Timaeus* for any version of these theses. More recently, some scholars have held that Plato lacks a consistent view of physical causality in these texts, but

<sup>23</sup> *Ibid.*, 99.

<sup>24</sup> *Ibid.*, 99.

<sup>25</sup> For example, Cornford 1937 holds that motion in the pre-cosmos is caused by an erratic nature of the World-Soul. He offers no evidence or argument supporting the view that the World-Soul has an irrational part to it, even though the text describes the World-Soul as possessing only *one* type of motion: rational motion (57, 176-177, 205, 209-210). This view has been accepted only by Morrow 1965, 437. It has been criticized by Clegg 1976, 52-61, 53-54; Robinson 1995, 74-83; Skemp 1942, 78-82; and Vlastos 1965, 379-399, 391-392. Skemp, Robinson, and Clegg each propose that there is some irrational psychic force independent of the World-Soul which is the source of erratic motions. Mohr 2005, 122 objects to this view by pointing out that it is specifically entertained and *rejected* in the *Statesman* myth (270a1-2). Both Cherniss 1944, 444-450 and Taran 1971, 386-388 hold that disorderly motions are the inadvertent but inevitable side-effects from intelligently-caused orderly motion. This view is challenged by Skemp 1942, 76-86; Robinson 1995, 74-83; Vlastos 1995, 278-279; and Easterling 1967, 26-30.

they conclude that this inconsistency cannot be reconciled by any reinterpretations of the *Timaeus*.<sup>26</sup>

Yet others have dissolved this apparent inconsistency by proposing that soul is the cause of motion *only* in the *cosmos*. Soul is *not* the cause of the disorderly motion that takes place *before* the cosmos is constructed. On this view, there is no discrepancy between the *Phaedrus* and the *Laus* on the one hand and the *Timaeus* on the other, because the texts are not addressing the same state of affairs.<sup>27</sup> Vlastos, for example, points out that this is why Aristotle says, "Plato sometimes declares the soul the *arche* of motion" (*Met* 1071a1). Vlastos argues that it would be absurd to attribute the motions in the pre-cosmos to a soul. A soul is inherently intelligent and ordered; the only cause of irregular behaviors of a soul is a *bodily* assault on a soul (*Tim* 35a), and there is no such external assault on the World Soul in the *Timaeus*. The capstone of his argument is as follows:

Forget the *Timaeus* altogether for the moment. How much could Plato mean when he says that the soul is the cause of all becoming and perishing? At its face-value this asserts that the soul itself is the cause of the *instability of becoming*; that apart from soul reality would be untroubled by transience. But this is grotesquely un-Platonic. When Plato does ask himself, "Is the soul more akin to being or becoming?" he can only answer, "It is in every way more like being" (*Phd* 79e). The one thing he *cannot* mean in the *Laus* is that soul is the source of Heraclitean flux. *Genesis* must be presupposed. It must be "there" before soul can supervene to "rule" it. But if it is "there," it must involve motion of some sort; not teleological motion in the absence of soul, but disorderly mechanical motion.<sup>28</sup>

I am most sympathetic with this latter view, that Plato believes that soul is the cause of motion only in the *cosmos*. I shall demonstrate that motion in the pre-cosmos is purely mechanical in origin, thereby lending support to this view. More to the point, by showing that motion is mechanistically caused, I challenge Silverman's claim that it is only plausible to interpret Intelligence as their cause.

The passage confirms that the *causes of motion* are two principles of *Necessity*: the principle that heterogeneity of powers causes motion and the principle that like will move towards like. *Prima facie*, is there any warrant for attributing these processes to Intelligence? It would be odd to suppose that these principles of motion were created *for the sake of* guaranteeing heterogeneity and thus perpetual motion of the elements. These principles or laws of motion are not caused for the sake of maximizing the good. Thus, it would be odd to attribute these principles of motion to

<sup>26</sup> Supporters of this thesis include Mohr 2005, 123 and Vlastos 1995, 275-276.

<sup>27</sup> Vlastos first advanced this view in 1939. His article was republished as Vlastos 1965. This view is also accepted by Easterling 1967, 31-38; Robinson 1995, 95-100; and Hackforth 1965, 442-445.

<sup>28</sup> Vlastos 1965, 398.



Intelligence. I shall show that they are principles that hold because of Necessity.

First, if we interpret Necessity as a determinate cause that is "chaotic" *only* in the sense that it is aretological, we can resolve the difficulties Silverman sees in a literal reading of the pre-cosmos passage. According to the account of the pre-cosmos, the four kinds are already differentiated, causing an imbalance of powers (52e1-2). As I argued earlier, it is unwarranted to assume that the differentiation among the four kinds must be caused by Intelligence. Their differentiation serves no particular purpose, and does not serve specifically to maximize the good in the cosmos. Based on this, there is no reason to suppose that such differentiation was caused by Intelligence. Within the pre-cosmos passage, Timaeus explicitly attributes motion of the bodies in the pre-cosmos to the heterogeneity of the powers of the four kinds:

Now [the Receptacle] ... was filled with powers that were neither alike nor evenly balanced, there was no equipoise in any region of it; but it was everywhere swayed unevenly and shaken by these things, and by its motion shook them in turn. (52d6-53a8)

The imbalance of the various powers of each of the four kinds (such as fire's power to ignite earth) creates a state of heterogeneity, which, as Timaeus will explain, causes motion. Previously, Timaeus had asserted this as a principle of Necessity: "... as secondary causes those belonging to things that are moved by others and that set still others in motion by Necessity" (46e1-2). The fact that the four kinds differ is a fact of Necessity, and this is a "secondary cause" that causes motion among the four kinds, which *of necessity* will in turn set each other in motion. Necessity is not, as Silverman interprets it, incapable of producing effects, and the pre-cosmos is not a domain in which it is impossible to conceive of things in temporal order. Timaeus describes processes in the pre-cosmos to which principles of motion apply.

After the account of the pre-cosmos, Timaeus gives us the mechanistic explanation of the principle that heterogeneity causes motion: Timaeus explains that the cosmos has a natural tendency to "gather in upon itself" and constrict all of the four elements together, allowing for no empty space. The smaller elements, such as fire and air, fill the gaps between the larger elements, such as earth. When earth, air, fire, and water are constricted together, they naturally act upon each other: fire breaks up air, air condenses into water, etc. In this plenum of the cosmos, a small element, such as fire, that has "squeezed" in between a gap between two larger elements, such as two masses of earth, will ignite the earth and cut it up. Likewise, the larger elements cause some of the smaller elements to coalesce into larger elements. As the elements transmogrify into one another, they move to their respective regions. But they are never at rest, and never

thoroughly separated from each other kind by kind. Though they have the tendency to move towards their own kinds, their constant action upon each other causes perpetual motion. This is due to the fact that the space they are in constricts them, allowing for no empty space, which then causes them to interact, in this way causing motion once again. This is why, as Timaeus says, "[T]he occurrence of non-uniformity is perpetually preserved, and so sets these bodies in perpetual motion, both now and in the future without interruption" (58e2).

Note that interaction of the bodies upon each other, and the bodies' tendency to move towards the region occupied by like bodies, is what causes motion. Intelligence is not the cause of this motion. The motion is caused by principles of Necessity: like tends towards like, and non-uniformity produces motion. Timaeus affirms that motion is mechanistically caused when he says:

Let us always presume that rest is found in a state of uniformity and to attribute motion to non-uniformity. The latter, moreover, is caused by inequality, the origin of which we have already discussed. (57e10-8a1)

The "origin of which we have already discussed" refers back to the imbalance of powers in the Receptacle that initially caused motion, and by necessity set other things into motion in turn. The fact that a non-uniformity of powers causes motion is described as a principle or law of nature. Laws of nature cause regular results: it is always the case that non-uniformity causes motion. Can we attribute this law of nature to Necessity alone? It is certainly not the case that the Divine Craftsman has *designed* nature such that non-uniformity and imbalance of powers causes motion. It is not teleological because there is no purpose that this law serves – the cause does not produce results that maximize goodness. Sometimes, it may be a good thing that the heterogeneity of powers causes motion, but in some cases, such a principle may be an obstacle to the fulfillment of a good result. Even though these principles act reliably in nature, and function as causes producing regular effects, they are not constructions of Intelligence. They are brute facts of nature, represented by Necessity. In this case, Necessity represents a regular, predictable, and determinate cause. Because the process by which heterogeneity causes motion serves no teleological end, it is inappropriate to construe this process as a product of Intelligence.

A second principle or law of nature is the tendency of like things to move towards each other after a mixture has been agitated. Timaeus says that the motion of the Receptacle had the following effect:

[I]t separated the most unlike kinds farthest apart from one another, and thrust the most alike closest together; whereby the different kinds came to have different regions ... This, of course explains how these different kinds came to occupy different regions of space, even before the universe was set in order. (53a5-8)

The tendency of like things to collect in a certain area as a result of motion is a cause, on par with a law of nature that always obtains and produces regular effects. Is this cause the result of Intelligence? It seems implausible to interpret the "principle of like to like" as a teleological cause, for there seems to be no purpose this principle serves. However, it is true of Necessity – a regular, predictable, and determinate cause. After the Divine Craftsman crafts the elements, this same principle holds true of the elements: "As a result of the Receptacle's agitation the masses of each of the kinds are separated from one another, with each kind occupying its own region" (57/2). The law that an imbalance of powers produces motion still holds as well.

Let us return to Silverman's reasons for claiming that Intelligence is always at work. He says:

This inequality, in turn, appears to have as its cause the fact that Demiriurgically created triangles can combine to form triangles of different sizes. By Plato's own lights, then, we apparently must appeal to the Intelligence causes to explain the source of the irregularity which could cause the motions of matter.<sup>29</sup>

I have argued that the four kinds of the pre-cosmos already exhibit inequality – they create an "imbalance of powers". Their actions upon each other and their tendency to drift towards like kinds causes motion. Accordingly, there is no reason to appeal to Intelligence as the cause of the source of irregularity that would make motion possible, as Silverman does. Moreover, there is no reason to attribute the principles of motion to Intelligence. The causes of motion are the heterogeneity of powers and the tendency of like to move towards like, and the fact that these states cause motion is a brute fact of Necessity. These causes of motion do not maximize the good in any way, and so there is no warrant for supposing that Intelligence created them.

The thesis that Necessity never acts alone, and that the events in the pre-cosmos are only possible with the work of Intelligence rest on two assumptions: (1) Necessity is incapable of producing effects, and (2) any instance of order, such as a body having a shape, or the temporal process of motion, must be the result of Intelligence's design. Against the first assumption, I have argued that it is a misguided interpretation of Necessity's description as a "wandering cause" (48a9). Necessity is a determinate cause that is "wandering" only insofar as it is ateleological: it does not produce effects for the sake of any particular purpose. In response to the second assumption, I have shown that Intelligence only acts for the particular purpose of maximizing the good. Because having a particular shape or moving according to mechanistic principles are not, in the case of the

pre-cosmos, serving any teleological goals, it is unwarranted to assume that their cause is teleological. Silverman's argument that the text should not be taken literally ultimately fails because it rests on assumptions about Intelligence and Necessity that I have shown to be unwarranted.

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