PLATONIC MODES OF EXPLANATION

by

Elizabeth Joann Jelinek
Department of Philosophy
Duke University

Date:_______________________

Approved:

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Dr. Michael Ferejohn, Supervisor

___________________________
Dr. Robert J. Hankinson

___________________________
Dr. Andrew Janiak

___________________________
Dr. Tad M. Schmaltz

Dissertation submitted in partial fulfillment of
the requirements for the degree of Doctorate
of Philosophy in the Department of
Philosophy in the Graduate School
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2008
ABSTRACT

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Abstract

In *Platonic Modes of Explanation*, I examine Plato’s treatment of Form, matter, and *telos* in his theory of explanation. To focus my investigation of Plato’s theory, I adopt an unorthodox approach: that of using Aristotle’s critical discussions as a touchstone for developing an interpretation of Plato’s doctrines. Ultimately, I conclude that Aristotle’s criticism of Plato is misdirected. Contrary to Aristotle’s view that Plato excludes material considerations altogether from his explanations, I argue that Plato’s theory of explanation involves a sophisticated and complex account of the relationships among form, matter, and *telos*.

My principal focus is not on whether Aristotle’s criticism is ultimately defensible; rather, I use Aristotle’s criticism as a point of departure for showing how nuanced and moderate Plato’s theory of explanation really is. In Chapter 2, I argue that in the *Phaedo*, Plato regards teleological explanations as an unattainable ideal and favors a mode of explanation involving both Form and matter. In contrast to what traditional interpretations suggest, Plato does see matter as playing an integral role in explanations of the natural world. Chapter 3 builds upon the argument that the Theory of Forms is completely separate from Platonic teleology by investigating Plato’s enigmatic descriptions of the Form of the Good in *The Republic*. It is tempting to interpret the Form of the Good as some kind of force that directs the processes of nature in ways that maximizes the Good. This would be a convenient way of wedding teleology with the
Theory of Forms. I argue, however, that the account of the Form of the Good in the *Republic* supports the claim that the Forms and teleology are two distinct forces at work. Chapters 4 and 5 focus on the *Timaeus*, a dialogue in which Plato fully develops the theory of explanation he offers in the *Phaedo* and the *Republic*. I show that Plato holds that matter, Form, and *telos* all figure in legitimate explanations concerning the formation of the sensible world. More specifically, I argue that matter plays a central role in Plato’s explanations. As a result of my investigations, I conclude that the characterization of Plato as an extreme formalist and teleologist is overly simplistic. What emerges instead is a more subtle and nuanced picture of Plato’s development of explanation that is far richer than Aristotle’s portrayal.
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1. Introduction

Had [Plato] availed himself, as Aristotle was to do, of the expository device of philosophical lexicography, this achievement would have been more perspicuous… However, we should not be put off by the fact that at no point does he say in the style of his great pupil and critic, “aitia has many different senses”. There are other ways of exhibiting distinctions, and one way of doing so is to use them. This, I argue is what Plato does.¹

The “philosophical lexicography” Vlastos refers to is Aristotle’s lexicon of the four different uses of the word ‘aitia’, which is roughly translated as ‘cause’ or ‘explanation’. Aristotle uses this four-fold classification as a foundation for developing a theory of explanation that is systematic and highly advanced (Posterior Analytics 71b10-12, 94a20; Physics II 8 194b17-20; Metaphysics 981a28-30). In contrast to Aristotle’s extensive examination of theories of aitiae, Plato’s occasional discussion of aitiae hardly seems noteworthy. Plato does not conduct a systematic evaluation of explanation-types, nor does he explicitly advance a particular theory of explanation. One may assume that this is an indication of Plato’s disinterest in the topic.

I shall offer an interpretation that challenges this assumption. In this dissertation, I examine Plato’s treatment of aitiae in the Phaedo, Republic, and Timaeus. My examination shows that the absence of an Aristotelian-style classification of different types of aitiae in Plato’s dialogues is not an indication of Plato’s inability to distinguish among different types of aitiae. As Vlastos points out, “there are other ways of exhibiting

distinctions, and one way… is to use them”. I shall argue that Plato’s use of different types of aitiai is indicative of well-developed views about how various types of aitiai may be distinguished and how these aitiai may be incorporated in explanations. My investigation brings these views to the surface and reveals their sophistication and nuance.

Throughout my investigation, I use Aristotle’s critical discussions of his predecessor’s theories of explanation as touchstones for my examination of Plato’s views. Aristotle characteristically frames his own doctrines by contrasting them with those of his predecessors. In the passages I examine, Aristotle uses a familiar strategy: he highlights the shortcomings of his predecessors’ theories – in this case, their theories of explanation – so that his own theory of explanation emerges as a superior alternative. As Gail Fine\(^2\) emphasizes, it is important to be aware of Aristotle’s agenda when examining his criticisms of Plato. Aristotle is not concerned with offering an accurate representation of Plato’s theories. This is not to say that he purposely misconstrues Plato’s theories to serve as a straw man for him to attack. Rather, some of Aristotle’s criticisms of Plato are well grounded, and some are less convincing, and we must consider them with this in mind. Regardless of their accuracy, his criticisms are illuminating – they offer a different perspective from which we may reexamine Plato’s doctrines. In this vein, I use Aristotle’s criticisms of Plato’s theory of explanation as springboards for developing questions to guide my investigation.

I wish to emphasize that while Aristotle criticizes Plato’s use of explanation vis-à-vis his own theory of explanation, I do not attempt defend Plato against this criticism by interpreting Plato’s explanations in Aristotelian terms. Such a move would be anachronistic. Ultimately, I show that Plato’s theory of explanation is unique, and its nuances would be lost if it were re-cast in Aristotelian terms.

With this in mind, I shall carefully lay the groundwork for Aristotle’s criticisms so that I may use them appropriately. Aristotle’s four-fold classification can be understood as four different types of answers to the question “*dia ti?*” or “why?” Each answer is an ‘*aitia*’, a Greek word which may be translated as ‘cause’, ‘account’, or ‘explanation’. These English translations are misleading in certain respects. For example, the English word ‘cause’ may refer to the item, agent, or state of affairs that produces the effect. An ‘explanation’ is a statement or description intended to clarify our understanding of something. The word ‘*aitia*’ is broader than both of these notions. In some contexts, the notion is best understood in terms of its origin in Athenian legal jargon. The adjective ‘*aitios*’ followed by a genitive means “responsible for”. The “*aition* of *x*” is “the thing responsible (to *aition*) for *x*. As I shall explain, Aristotle uses the word ‘*aitia*’ in various ways, and perhaps the most general translation is ‘a type of explanation’.

In his discussion of *aitiai*, Aristotle achieves the following: he creates a distinction among four different types of explanation (a distinction which he considers

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3 According to Sedley, ‘*aitia*’ is a thing, not an event or a process. He offers an excellent discussion of Plato’s use of the word ‘*aitia*’ in the *Phaedo*. (Sedley, David. 1998, 'Platonic Causes', Phronesis 43: 114-132.)
exhaustive), he describes the way in which each type of explanation accounts for its particular *explanandum*, and finally, he establishes a condition for knowledge that incorporates all four types of *aitia*. First, I shall describe each of the four types of explanation:

1. A *material explanation* accounts for a property of an object by reference to its material makeup. An example of such an explanation is this: A statue is heavy because it is made of bronze.

2. A *formal explanation* accounts for an object in terms of the particular pattern or form it must have in order to meet the requirements set by a broader classification. According to Aristotle’s notion of form, the form is the structure, organization, and shape by virtue of which a chunk of matter, for example, is a particular identifiable object. For example, the form of a bronze statue is its shape – it is what distinguishes the statue from other bronze objects. The form of a human being is his soul – it is what makes him a man rather than a pile of flesh and bone. It is important to note that Plato’s theory of Forms is distinct from Aristotle’s notion of forms. On Plato’s theory, a Form is an eternal, unchanging entity that is ontologically separate from the physical world. The two theories are similar because each is intended to account for what makes something an *x* rather than a *y*. I discuss Plato’s theory more thoroughly in my examination of the *Phaedo*.

3. An *efficient explanation* identifies an agent or event that is the primary source of change. This is similar to the modern notion of “cause”.
4. An example of a final or teleological explanation is this: a man exercises for
the sake of his health. A final explanation refers to the end or purpose of the
action or event. Aristotle’s final explanation bears similarities to Plato’s
teleological explanation: both explain a state of affairs in terms of its purpose.
I explain Plato’s teleological explanations more thoroughly throughout this
work.

I have described the first two achievements of Aristotle’s theory of explanation:
the development of four types of explanation, each of which successfully explains the
particular type of explanandum appropriate to it. Each type of explanation can be used
on its own, and many can be used in combination with each other. The third achievement
of Aristotle’s theory of explanation is the development of the criteria for knowledge of
natural objects.

According to Aristotle, natural objects are subjects of change in nature. In order
for an explanatory account of a natural object to be adequate, it must account for the
types of changes that define it. It must explain how the object came to be (efficient
aitia), why the object came to be as it is (material aitia and formal aitia), and the purpose
for which the object came to be (final aitia). In this case, we can see why translating
‘aitia’ as ‘cause’ is misleading: Aristotle is not concerned with identifying the cause of a
particular event; rather he wants to identify the different types of causal factors that play
a role in an object’s “coming to be”. Translating ‘aitia’ as ‘account’ is also misleading,
because Aristotle is not giving a mere description of the object. In this case, the four
aitiali of an object are best understood as the four different types of causal factors – each
of which is necessary, and all of which are jointly sufficient – that are responsible for making the object what it is. This is why knowledge of an object’s four aitiae is a criterion for knowledge of the object itself.

One of the examples Aristotle uses to illustrate the use of all four aitiae in an explanatory account is his account of a house. He considers the necessary and sufficient components an explanation must have in order to answer the question, “How did this house come to be?” First, there is the material aitia: The house is made of bricks and timber. But the bricks and timber are not in a disorganized pile; rather, they are structured in the shape of a house (formal aitia). The builder’s building of the house is what caused it to come to be where and when it did (efficient aitia). The final /teleological aitia explains the purpose, or telos, of the house: to provide shelter for its inhabitants.

In Aristotle’s criticisms of his predecessors’ theories of explanation he erects the following dichotomy: On the one end are those he calls the “materialists”, philosophers who offer explanations that invoke material and efficient aitiae but completely disregard formal and final aitiae. Of course, as Aristotle suggests, it is absurd to claim that you are giving a complete account of a house, by mentioning only the bricks and timbers and the activity of the builder. These explanatory factors do not explain why there is a house, rather than just a pile of bricks and timber. On the other extreme of Aristotle’s dichotomy are the “formalists” and “dialecticians” who offer some combination of formal and teleological aitiae, but neglect to mention anything about material. It is equally absurd to claim you are giving a complete account of a house, while failing to mention
anything about its material. A house is not just a particular configuration intended for providing shelter – that may as well be an abstract concept rather than a physical object.

One must mention that the house is a structure made of material that provides shelter. Against the background of this dichotomy, Aristotle represents himself as the “golden mean” by taking the reasonable intermediate position that an adequate explanatory account of an object should incorporate all four aitiai.

Plato is the likely target of Aristotle’s criticism of those he calls “formalists” or “dialecticians” – philosophers incapable of offering adequate explanations because of their inability to incorporate matter as an explanatory mode. He makes an explicit reference to Plato in de Generatione et Corruptione:

On the contrary some amongst them [the formalists] thought the nature of the Forms was adequate to account for coming-to-be. Thus Socrates in the Phaedo first blames everybody else for having given no explanation; and then lays it down that some things are Forms, other Participants in the Forms, and that while a thing is said to be in virtue of the Form, it is said to come-to-be qua sharing in, to pass away qua losing, the Form. Hence he thinks that assuming the truth of these theses, the Forms must be causes both of coming-to-be and passing away… (335b7-16 Peck translation).

Of course, as Aristotle himself points out, this conclusion is absurd. Plato’s Forms are non-physical and ontologically separate from the sensible world; as such, they cannot physically interact with things in the sensible world. Moreover, the Forms are timeless, and so it is impossible for them to cause anything at a particular time or location.4 Thus, the notion that they are causes of “coming-to-be” (generation) or “passing away”

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4 According to Plato’s Theory of Forms, the Forms cannot be responsible for temporal changes. For a fuller explication of this point, see Vlastos (1981, p.104).
(destruction) is nonsensical. The passage implies that since the Forms cannot be efficient causes, Plato is lacking any alternative account of efficient causation.

A representative example of Aristotle’s criticism of theories that lack material explanations is his discussion in *de Anima*:

The student of nature and the dialectician would give different definitions of each of these affections – of anger, for instance. The dialectician would define it as a desire to inflict pain in return for pain, or something of that sort, whereas the student of nature would define it as a boiling of the blood and of the hot [element] around the heart. The student of nature describes the matter, whereas the dialectician describes the form and the account: for desire, for instance, is the form of the thing, but its existence requires this sort of matter. Similarly, the account of a house is of this sort – that it is a shelter preventing destruction by wind, rain, or heat; someone else will say that it is stones, bricks, and timber; and someone else will say that it is the form in these [stones, for instance,] for the sake of this end. Who, then, is the [real] student of nature – the one who is concerned with the matter but is ignorant of the account, or the one who is concerned only with the account? Or is the [real] student of nature more properly the one who mentions both form and matter? (403a30-403b9 Hett translation).

In this account it becomes clear that, on Aristotle’s view, an adequate explanation is not purpose-relative; rather, it must account for the necessary and sufficient conditions responsible for the outcome in question. In this passage, one of the necessary conditions for a man’s anger is a certain psychological state, such as the “desire to inflict pain in return for pain”. The second necessary condition for a man’s anger is a physical state: the boiling of the blood and the hot element around the heart. Because the “dialectician” is only capable of explaining a man’s anger in terms of the man’s beliefs and desire he cannot offer an adequate account of why the man is angry because he mentions only one of the necessary conditions, the psychological state, and not the second necessary condition, the physical state. The “materialist” has the opposite problem: he can account
for one necessary condition, the physical state of a man’s anger (the blood boiling around
his heart) but he cannot account for the psychological state. Aristotle represents himself
as offering the ideal theory of explanation because he is capable of accounting for any
necessary condition required for a state of affairs.

I do not intend merely to prove that Plato is not guilty of Aristotle’s criticisms;
rather, I use Aristotle’s criticisms as a point of departure for a more general examination
of Plato’s theory of explanation. I summarize Aristotle’s criticisms as follows:

Criticism 1. Plato’s account in the *Phaedo* commits him to the absurd view that
Forms function as efficient causes.

Criticism 2. Plato does not adequately take into account material considerations
in his theory of explanation.

Plato discusses the topic of adequate explanation (especially of natural phenomena) at
length in only two dialogues, the *Phaedo* and the *Timaeus*, and he briefly discusses the
topic in the *Republic*, Book V, where he criticizes the explanation of the sight-lovers.
Because these are the only works where Plato discusses the issue of adequate
explanation, my examination naturally (and unavoidably) focuses upon them. My
investigation will ultimately demonstrate that the *prima facie* characterization of Plato’s
theory of explanation as one that is limited to only Formal and teleological explanations
is an overly simplistic interpretation. I show that a closer reading of the *Phaedo*, the
*Republic*, and the *Timaeus* bring to the surface Plato’s sophisticated treatment of Form,
matter, and *telos* as three distinct explanatory modes. Ultimately, what emerges is a more
subtle and nuanced picture of Plato’s development of his theory of explanation that is far richer than what we may have expected, given Aristotle’s remarks.

**Overview**

In Chapter 2, I examine the theory of explanation developed in the *Phaedo* in terms of Criticism 1 regarding Forms and efficient causes. I demonstrate that, contrary to Aristotle’s criticism, Plato’s account in the *Phaedo* does not commit him to the view that Forms are efficient causes. Alternatively, I argue that Aristotle’s conclusion can be avoided: Socrates’ seemingly haphazard discussion of the different types of explanations is more plausibly interpreted as his development of his strict criteria for a “genuine aitia”. On this view, Plato does not come to the absurd conclusion Aristotle attributes to him. Aristotle also suggests that Plato lacks any account of efficient causation. My examination of Plato’s teleological explanations shows that these explanations incorporate efficient causes. Nevertheless, Socrates puts his discussion of teleological explanations aside because he feels he does not have adequate knowledge of them. As a “second best” alternative, he offers the Formal type of explanation, beginning with the “safe” or “simple” type of Formal explanations, and culminating with his “clever” type of Formal explanation. I argue for a novel interpretation of Plato’s “clever aitia”: I show that this explanation is in fact a hybrid of both Formal and material explanatory modes.

Chapter 3 builds upon the argument that the Theory of Forms is completely separate from Platonic teleology by investigating an important place where the Theory of Forms is developed: the *Republic*. In the *Republic* Plato complicates our still-unclear
picture of how the Forms work with his enigmatic descriptions of the Form of the Good. The Form of the Good seems to be prior to everything in the universe: It is epistemologically prior, because without it, we cannot gain other knowledge (505a-506a Reeve translation). It is ontologically prior in the strange sense that other Forms get their “being and essence” from the Form of the Good (509a-b). In this sense, it is also ethically prior, because the principles of ethics and politics derive their being from the Form of the Good. In short, everything “participates” in the Form of the Good. But what does that really mean? The first task is to answer this question, and try to interpret the Form of the Good in a way that is consistent with the rest of the Theory of Forms. Then, we must ask how the Form of the Good relates to teleology. It is tempting to interpret the Form of the Good as some kind of force that directs the processes of nature, ensuring that they behave in ways that maximize the Good. This would be a convenient way of wedding teleology with the Theory of Forms. Unfortunately, there is no textual evidence for this tidy answer. In fact, I will contend that the account of the Form of the Good in the Republic supports the claim that the Forms and teleology are two distinct forces at work.

In Chapters 4 and 5, I turn to detailed analysis of the Timaeus. The Timaeus is the dialogue in which Plato accounts for the creation of the universe, and thus it is naturally the place in which scientific explanations come into focus. However, the standard interpretation holds that these scientific explanations are teleological and/or Formal explanations in disguise. If this is the case, then Aristotle is correct: Plato is able to offer
only Formal explanations, and with the introduction of the Divine Craftsman, teleological explanations.

While some may argue that the *Timaeus* is an exclusively teleological cosmology, I demonstrate that this view leaves explanatory gaps in Plato’s discussion. Since, as I argue, these gaps cannot be accounted for in terms of Formal explanations, I conclude that they require material explanations. Moreover, I show that Plato develops the “clever aitia” in the *Phaedo* in such a way that allows for him to offer legitimate material explanations needed in the *Timaeus* account. Ultimately, my investigation shows that Plato’s theory of explanation includes three irreducible types of explanations: teleological, Formal, and material.
2. Plato’s Theory of Explanation in the *Phaedo*

In this chapter, I examine the passage in the *Phaedo*¹ (96a-107a Gallop translation) in which Plato² develops his theory of explanation. Prior to this point in the dialogue, the interlocutors have agreed that the soul can exist outside of the body and that the destruction of the body does not entail the destruction of the soul. Cebes, however, observes that Socrates has not yet shown “the soul to be immortal but only long lasting” (95c). He raises the possibility that just as a cloak decays and is eventually destroyed even though it might outlast several owners, so too the soul might decay and eventually be destroyed even though it might outlast several bodies. If the soul is like a cloak, the issue resurfaces of whether Socrates should fear his imminent death, for how does Socrates know these bones and sinews of his are not his soul’s last body? With this worry on the table, Phaedo recounts:

Socrates paused for a long time, deep in thought. He then said: “This is no unimportant problem that you raise, Cebes, for it requires a thorough investigation of the cause of generation and destruction. I will, if you wish, give you an account of my experience in these matters” (96a).

Socrates begins with an autobiographical sketch of the intellectual journey he undertook as a youth in search of an account explaining why (*dia ti*) a thing is generated (*gignetai*), destroyed (*apollutai*) and why it exists (*esti*) (96a6-10, 97b3-7). He starts by examining commonplace explanations, including those offered by the pre-Socratic natural

¹ Gallop, David. *Plato’s Phaedo: Translation and Commentary.* (Oxford: Oxford University Press, 1993). All of the passages cited from the *Phaedo* are from Gallop’s translation, unless otherwise noted.
² For the purposes of this chapter, I regard Socrates as a dramatic character representing Plato’s views.
philosophers. To his disappointment, none of these explanations succeed in adequately accounting for the phenomenon it purports to explain. On the basis of his criticisms of these explanations, Socrates develops a superior theory of explanation that includes three distinctive types: his teleological explanations and the “simple” and “clever” versions of his Formal explanations. Though the ultimate goal of the passage is to explain why the soul, unlike a cloak, is not susceptible to destruction, the passage is important for understanding Plato’s theory of explanation more generally.

As touchstones for my examination of this passage, I use what I identify in the Introduction as Criticism 1, which represents Aristotle’s criticism of the Phaedo passage, and Criticism 2, which summarizes Aristotle’s critique of the “Formalists’” theory of explanation. The reason I refer to these particular criticisms is that they each bring to the surface certain aspects of the Phaedo passage that require further scrutiny. For example, as I explained in the Introduction, Aristotle argues that Socrates’ discussion in the Phaedo commits him to the absurd conclusion that the Forms play the role of efficient causes of generation and destruction. This interpretation may be uncharitable, but it is nonetheless instructive: it highlights the fact that Socrates’ discussion seems to lack a coherent structure, leaving it open to unreasonable conclusions such as Aristotle’s. In the first section of this chapter, I offer a more plausible interpretation of Socrates’ discussion which avoids this pitfall.

The implicit suggestion in Criticism 1 is that if it is not the case that Plato uses Forms as efficient causes, then it follows that Plato does not account for efficient causation at all. My examination in the second section of this chapter demonstrates that
this is false; in fact, Plato successfully accounts for efficient causation by incorporating this explanatory mode in what I call Platonic Teleological Explanations. I conduct a thorough investigation of Socrates’ discussion of these explanations in the *Phaedo* passage in order to explain the ways in which Platonic Teleological Explanations differ from other teleological explanations. As I shall explain in subsequent chapters, Socrates’ discussion of Platonic Teleological Explanations in the *Phaedo* lays crucial groundwork for Plato’s development of this type of explanation in the *Timaeus*.

My discussion in the third and final section of this chapter is motivated by Criticism 2, which represents Aristotle’s implicit suggestion that Plato is a “Formalist” who neglects material considerations in his explanations. His criticism of the Formalists’ theory of explanation calls for a closer reading of Plato’s discussion of the clever aitia. Contrary to what both Aristotle’s criticism and a prima facie reading may suggest, I argue that Plato’s clever aitia is in fact more sophisticated than previously recognized: it is a novel hybrid explanation that incorporates both Forms and matter as explanatory modes. Thus, Plato’s clever aitia represents one of the ways his theory of explanation resists Criticism 2.

**2.1 The Purpose of Plato’s Examination of Explanations**

Perhaps the central passage describing Plato’s development of his theory of explanation is vulnerable to uncharitable interpretations such as Aristotle’s because it is

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so notoriously enigmatic. In the beginning of the passage, Socrates says that he is seeking an adequate account of generation, existence, and destruction, which suggests that he is looking for accounts explaining processes in nature. But the potential candidates that Socrates considers in his search seem to be inappropriate sources of explanation for the types of phenomena he wishes to explain. Among the candidates are mathematical processes, psychological beliefs and motivations, and metaphysical relations. It seems absurd to consider these as the basis of an explanation of generation, existence, and destruction, and Socrates offers us no insight into his reasons for doing so.

Equally confusing is his evaluation of different types of explanations: he rejects explanations of physical processes and seems to suggest that they should be replaced with explanations of psychological beliefs and desires (such as his teleological explanations). It seems odd to propose that one explanation should replace the other, since the two types of explanation address entirely different questions. For example, if I wanted to know how the baseball broke the neighbor’s window, I would expect an explanation in terms of the physics of the event, i.e., the distance between the ball and the window, the speed at which the ball traveled, the thickness of the window, etc. On the other hand, if I wanted to know the reason why the person threw the baseball in the first place, I would want a teleological explanation; i.e., one that explains the person’s motivations for throwing it. But after Socrates makes the odd claim that the teleological explanation is superior to all others, he seems to change topics completely. He shifts his

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4 Annas argues that Plato is, in fact, guilty of casting Forms in the role of efficient causes in this passage, and that the confusing nature of his discussion is what commits him to this conclusion. (Annas, Julia. 1982, 'Aristotle on Inefficient Causes', The Philosophical Quarterly 32: 311-326.)
focus to his account of two types of Formal explanations – explanations in terms of a
metaphysical relationship between a sensible object and a metaphysical entity in which it
participates. This type of an explanation seems entirely unrelated to the ones Socrates
has discussed.

Criticism 1 - that Socrates’ discussion in the *Phaedo* commits him to the
unreasonable conclusion that Forms are efficient causes - calls attention to the fact that
Socrates appears to have failed to answer his own question: In the beginning of the
passage, Socrates sets out to describe his youthful search for a type of explanation that
adequately accounts for generation, existence, and destruction. At the end of the section,
Socrates offers his theory of Formal explanations. Taken at face value, the structure of
Socrates’ discussion suggests that Formal explanations constitute the adequate
explanations of generation, existence, and destruction that he sought at the outset. If this
is the case, then Forms must be the cause of a thing’s “coming into being”, as Aristotle
suggests. Further support for this absurd conclusion is Socrates’ explicit statement that
the Forms are in fact the cause of a thing’s coming-into-being. Socrates says:

You know no other way in which each thing comes to be, except by
participating in the peculiar [Form of] Being of the given thing in which it
does participate (101c1-4).

Of course, as Aristotle himself points out, the conclusion he attributes to Plato is
absurd. Plato’s Forms are timeless, non-physical, and ontologically separate from the
sensible world. Forms cannot physically interact with things in the sensible world or
cause anything at a particular time or location, since time and location are indexes only in
the sensible world. Thus, the notion that the Forms are efficient causes, i.e., causes of a
particular thing’s coming-into-being at a particular time and place, and causes of a particular thing’s passing away at a particular time and place, is nonsensical.

Given that Aristotle himself recognizes that the conclusion he attributes to Socrates is absurd, many scholars - most prominently Vlastos (1981) - dismiss Aristotle’s particular criticism of the *Phaedo* as a misreading of the passage. I disagree: While Aristotle’s interpretation of the passage is uncharitable, I claim that it is not entirely ungrounded because the passage is sufficiently unclear as to allow for such an interpretation.

*Prima facie*, Socrates seems to offer a haphazard overview of different types of explanations, some of which he rejects arbitrarily and some of which he favors. I claim that the discussion can be read more charitably once we gain a clearer understanding of Socrates’ main objective. I interpret Socrates’ goal as that of identifying a specific criterion that *any* explanation – regardless of what type of explanation it is – must satisfy in order to qualify as a legitimate explanation. Given this interpretation, his discussion can be plausibly understood as a systematic examination of different types of explanations intended to lend insight into what this criterion may be. On the basis of his examination, he concludes that an explanation is legitimate only if it is based on a strictly defined explanatory mode which he calls the “genuine aitia.”

As I explained in the Introduction, the Greek word ‘*aitia*’ may be translated as ‘cause’, ‘because’, or ‘the reason why’, and may be interpreted as a thing responsible for a given outcome. On my reading, Plato’s notion of *aitia* is broader than Aristotle’s. It will become clear in my examination of the *Phaedo* that *aitia* is best understood as a
salient entity mentioned in an explanatory account. Plato’s genuine aitia in particular is an entity which guarantees a particular effect by virtue of its essential properties.\(^5\) In the final argument of the *Phaedo*, the soul is a genuine aitia: the soul, by virtue of its essential nature (a bringer of life), guarantees a specific outcome (life in the body it inhabits). This interpretation is compelling not only because it offers a plausible reading of the central passage of the *Phaedo*, but also because it is consistent with later accounts of explanations: both Socrates’ final argument in the *Phaedo* regarding the soul, and Plato’s more developed theory of explanation in the *Timaeus*.\(^6\)

Interpreting Socrates’ goal as that of developing this criterion for a genuine aitia allows us to make sense of why he rejects the explanations he does. The search for an account of generation, existence, and destruction begins with Socrates’ investigation of the works of the natural philosophers. As I shall explain, he does not reject these explanations because they are mechanistic, but rather because they fail to explain the phenomenon in question. On my reading, the reason the discussion shifts is because Socrates realizes that before he can continue to search for explanations of particular phenomena, he first needs to learn what makes any explanation – regardless of the subject -- a legitimate explanation. In other words, his new objective is to understand what the relationship between the explanation and the thing it purports to explain must be in order for an explanation to be legitimate. In light of this goal, his examination of

\(^5\) I am indebted to Sedley (1998) for this interpretation.
\(^6\) I discuss its relevance to the *Timaeus* in Chapters 4 and 5.
several types of explanations no longer seems erratic, because his goal is to determine the
criterion for what makes any explanation, regardless of its type, successful.

Socrates explains that as a youth he “unsettled himself” with questions such as
whether heat and cold generate organization in animals, whether blood, air, or fire
generate thought, whether the brain generates the sensations of sight and smell, and
whether these sensations in turn generate knowledge. In a similar vein, he tried to find
out “how these things perish” (96c) until he finally made up his mind that he was “totally
unfitted by nature for this kind of investigation” (96c). Socrates’ own youthful
investigations thus turned out to be failures; interestingly, they also turned out to be
mechanistic explanations. Socrates then recounts his attempt to learn the causes of
generation and destruction not through his own efforts but through the efforts of another,
Anaxagoras. He had heard Anaxagoras accounted for the world in terms of Intelligence
(Nous). Upon reading Anaxagoras’ works, however, he found that “the man made no use
of his intelligence, and did not assign any real causes [genuine aitiai] for the ordering of
things, but mentioned as causes air and ether and water and many other absurdities”
(98c). Once again, Socrates’ attempt to learn the causes of generation and destruction
ended in failure; once again, the failed account turned out to be a mechanistic
explanation. Not surprisingly, these autobiographical remarks have lead many to
conclude that Socrates does not consider these explanations to be genuine aitiai precisely
because they invoke material considerations and accordingly take these remarks to show
that matter will never qualify as a genuine aitia. I contend, however, that the point of
these autobiographical remarks is not to show that matter cannot be a genuine aitia;
instead, the point of these remarks is to identify criteria that any explanation must meet in order to be a genuine *aitia*.

Between recounting his own youthful efforts and his study of Anaxagoras’ works, Socrates mentions two other examples, which he revisits several times in the course of the discussion. In one example, Socrates confesses to Cebes that he is unable to offer a genuine *aitia* for a certain mathematical result. Initially, he supposed that the reason for there being two of anything must be that one thing has been *added* to another. But then he realized that it is just as likely that there are two things because one item has been *divided* into two. In this case, two opposite operations, addition and division, are equally likely candidates for the cause of there being two things. But if there are two candidates that explain the outcome equally well, then it is impossible to identify a genuine *aitia*, which must be one particular cause that guarantees the outcome in question. Socrates cannot offer a genuine *aitia* for this phenomenon, because he cannot possibly identify the cause responsible for it. As Vlastos\(^7\) points out, Socrates’ discussion of mathematical explanations is clearly misguided. Nonetheless, the reason Socrates offers for rejecting the mathematical explanation he considers (96e9-97b1) gives us insight into his conception of the genuine *aitia*.

In another example\(^8\), Socrates attempts to explain why Simmias is taller than he. His initial explanation is that Simmias is taller “by a head”. But he concludes that this

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\(^7\) Vlastos (1981, p.100)
\(^8\) Vlastos (1981, p.100 n. 64) explains that Plato commits a fallacy here by equivocating between “larger than” and simply “large”. Whether or not the mathematical example and the head example constitute valid arguments does not affect my discussion here. I use these examples insofar as they contribute to our understanding of Socrates’ criterion for a genuine *aitia*. It is generally agreed that, for this purpose, the examples are unproblematic.
explanation is inadequate: one cannot cite a head as the reason for Simmias’ tallness because “it’s surely monstrous that anyone should be large by something small” (101b1). In other words, Plato thinks it is absurd to claim that something small (a head) can be responsible for something large (Simmias’ tallness). Furthermore, Simmias is shorter than Phaedo by a head. Now we have one thing (a head) that seems to be responsible for two opposite results: shortness and tallness. According to Plato, this is a contradiction. Even though, as Vlastos explains, the explanation Plato gives here is internally invalid, the example is instructive nonetheless: Socrates’ reasons for rejecting the explanation are consistent with his discussion of genuine aitiai. A head, by virtue of being small by nature, cannot guarantee a particular outcome -- it may explain why someone is short, or it may explain why someone is tall. Socrates concludes that he cannot offer a genuine aitia for Simmias’ tallness by invoking a head as the cause, since the head, by nature, does not consistently guarantee this outcome.9

Socrates rejects the account offered by the natural philosopher Anaxagoras on the same grounds. At this point in the dialogue, Socrates resumes his narrative about the search for adequate explanations he undertook as a youth. He is excited to read the works of the natural philosopher Anaxagoras, because he had heard that Anaxagoras offers an account of the world in terms of Intelligence (Nous). To his disappointment, Anaxagoras merely refers to ‘Nous’, failing to incorporate the concept of intelligence in

9 After considering further examples of explanations that fail to identify a genuine aitia, Socrates concludes that there are three further criteria for a genuine aitia. These are as follows: If x is an genuine aitia for F, then, 1) x’s opposite cannot be the cause of F (97a7-b3), 2) x cannot cause un-F (101a6-8), and 3) x itself cannot be un-F (101a8-b2). I articulated a more general requirement, which is that a genuine aitia, by virtue of its nature guarantees a specific outcome. These constitute stricter requirements, which taken together suggest that causation must be a matter of like causing like. This stricter requirement is compatible with my arguments here, but it is not crucial to my discussion.
his cosmology. Socrates had expected Anaxagoras to say that everything in the universe is the product of *Nous*, a supreme intelligence whose goal is to design the world in the best way possible. Such an account would explain, for example, that the reason the Earth is round is because it is best for it to be so, and that the reason the heavenly bodies move in a particular way is that it is best that they do so. Ultimately, this account would show that the whole universe functions in such a way that maximizes the good for all.

As it turns out, Anaxagoras fails to offer the account Socrates expects. Instead of explaining that everything represents the best possible state of affairs as result of *Nous’* intentional design, Anaxagoras does not invoke *Nous* as a causal entity at all. Rather, he cites “air, aether and water and many other absurdities” as the cause for “the ordering of things” in nature (98c1). Socrates says that this conclusion is entirely misguided – it is as absurd as saying that the “reason” Socrates is currently sitting in jail is that his bones and sinews are arranged in a seated position. But “to call such things [as his bones and sinews] reasons is quite absurd” (99a5), because the very same bones and sinews that “caused” him to sit in jail could just as easily carry him off to exile in Megara. In other words, bones and sinews are not “genuine *aitia*”, because they do not guarantee the specific outcome in question, that of Socrates sitting in an Athenian jail.

I revisit Socrates’ rejection of Anaxagoras’ cosmology and his own account of his sitting in jail several times in this chapter. What I wish to emphasize here is that each of the explanations in his seemingly haphazard investigation serve the same purpose: to highlight one or more of the criteria Socrates develops for a genuine *aitia*. We can conclude from the mathematical explanation that it is impossible to identify a genuine
aitia for an outcome that may result from two opposite causes. The head example shows that a genuine aitia must not be able to produce two opposite results. Similarly the account of his sitting in jail illustrates that his bones and sinews cannot be a genuine aitia because they may cause two opposite results. But the rejection of Anaxagoras’ cosmology and the bones and sinews account seem to do more than just develop the concept of the genuine aitia. In each case he rejects a mechanistic explanation (one in terms of physical processes) in favor of a teleological explanation (one in terms of beliefs and desires). Is this similarity insignificant, or does it reveal something further about Socrates’ theory of explanation?

It may seem as though Socrates’ rejection of these mechanistic explanations is evidence of his conviction that teleological explanations are superior and should replace all other types. Prima facie, Socrates’ criticism of mechanistic explanations does suggest that he rejects all explanations that cite physical processes as the reason for a state of affairs, because, as he says, “to call such things reasons is quite absurd”. I claim that this view is overly simplistic: Socrates criticizes Anaxagoras’ view only because it seems inconsistent to him, given the role he expected Nous to play. As I have explained, he rejects the bones and sinews as a genuine aitia because it cannot guarantee one particular outcome. Ultimately, he expresses his preference for teleological explanations, and we can infer from the text that teleological explanations succeed in invoking a genuine aitia. Nonetheless, the fact that he prefers teleological explanation does not necessarily imply that he thinks they should replace other types of explanations; likewise, the fact that he rejects the particular mechanistic explanations he mentions does not imply his rejection
of all mechanistic explanations. In fact, Socrates himself offers a mechanistic explanation later in the dialogue. Socrates says, “the reason why all the streams flow out there and flow in, is that this liquid has neither bottom nor resting place” (112b1). Here, a natural material is the genuine *aitia* for a physical process. He takes the fact that liquid has neither bottom nor resting place to be an adequate explanation for why all the streams constantly flow in and out.

Perhaps one may argue the central passage nonetheless indicates that he lacks genuine interest in physical processes, since he makes no attempt to replace the mechanistic explanations he rejects with new legitimate accounts of the same phenomena. This conclusion is unwarranted. As I have suggested, Socrates’ goal is to find an explanation that properly invokes a genuine *aitia*, regardless of its subject. He rejects the mechanistic explanations mentioned in the passage based on their shortcomings *qua* explanations. Even though he makes no attempt to replace the rejected mechanistic explanations with new ones, it is clear that he is nonetheless interested in accounts of physical and natural processes. Socrates explicitly states that the purpose of his intellectual journey is to find an adequate account of generation, existence, and destruction in the natural world. This is evident from the examples of the questions he hopes this type of account may answer. He asks, “is it, as some said, whenever the hot and the cold give rise to putrefaction, that living creatures develop? And is it blood that we think with, or air, or fire?” (99b1-5)

It is this interest in physical phenomena that inspires him to read the works of the natural philosophers. Initially, he is eager to read the doctrines of Anaxagoras because he
hopes to find explanations invoking Intelligence. But what he expects Intelligence to explain are physical phenomena. He wants to know “about the sun, the moon, and the stars, about their relative velocity and turnings and the other things that happen to them.” (98a2-5). As I shall argue in the last section of this chapter, Socrates’ interest in physical processes lends insight into why he discusses natural phenomena in his account of the “clever aitia”.

Even though he does not offer new mechanistic explanations to replace the ones he has rejected so far, his theoretical treatment of physical facts constitutes a strikingly sophisticated component of his theory of explanation. In his account of why he is sitting in the Athenian jail, he explains how one may incorporate relevant facts about physical processes in an explanation. He acknowledges that, even though his bones and sinews do not constitute a genuine aitia, they are “that without which the cause would not be able to act as a cause.” In other words, his having bones and sinews is a necessary condition for his ability to carry out this particular decision. Here he makes proper use of the concept of a necessary condition. As I shall explain in my investigation of the Timaeus, this account constitutes the foundation for the more developed theory of physical causation he offers in the Timaeus.

I have argued that Socrates rejects the mechanistic explanations considered in the central passage not because they are mechanistic, but rather because they fail to explain what they explicitly identify as the outcome in question. In other words, they fail to answer their own question. But a closer reading shows that Socrates’ account of how the
bones and sinews explanation fails to answer its own question is more nuanced than what we might expect.

Socrates explains that bones and sinews do not constitute a genuine aitia because they do not guarantee one particular outcome. One may point out that Socrates’ objection is flawed: one could offer a legitimate explanation for why Socrates is physically situated in the Athenian jail cell rather than in Megara. Such an explanation would describe a chain of causal events that necessitate this result. In such an explanation physical things would be genuine aitiae – causal entities which guarantee certain outcomes by nature. But a closer reading of the passage shows that such an explanation would not be appropriate. He says:

In fact he seemed to me to be… someone who said that all Socrates’ actions were performed with his intelligence, and who then tried to give the reasons for each of my actions by saying first, that the reason why I’m sitting here is that my body consists of bones and sinews (93c1-7, italics mine).

Here, Socrates specifically identifies the state of affairs being explained: it is not merely his sitting in jail; rather, the state of affairs is that a person who performs all actions with intelligence is sitting in jail. An explanation in terms of bones and sinews, in this case, fail to explain the state of affairs in question.

2.2 Platonic Teleological Explanations

Socrates explains his sitting in jail in terms of a teleological explanation, which I shall call a Platonic Teleological Explanation. Given that all of his actions are performed with his intelligence, an account of his actions must be given in terms of his reasons for
performing these actions. According to Socrates’ teleological explanation of his jail presence, the reason why he is in jail is that the Athenians decided it was best to condemn him and he has judged it best to accept the penalty rather than escape (98e). By way of explaining what a Platonic Teleological Explanation is, I contrast it to a generic teleological explanation. A generic teleological explanation for \( x \) is one in which a purpose or goal is cited in the explanation for \( x \). For example, “My chair has wheels so that it can be moved easily”. The purpose, to be movable, is the reason why my chair has wheels. Platonic Teleological Explanations also account for the reason why a state of affairs obtains in terms of purpose, but Platonic Teleological Explanations have several features that a generic teleological explanation does not.

Consider the Platonic Teleological Explanation of why Socrates is in jail: the Athenians decided it was best to condemn him and he has judged it best to accept the penalty rather than escape. This highlights one of several aspects of Platonic teleological explanations that distinguish them from generic teleological explanations:

**PTE 1:** There is an intelligent agent whose desires, intentions, or beliefs constitute the reason why the state of affairs obtains. For example, Socrates’ desire to do what he thinks is best is the reason he is in jail. 10

The fact that these Platonic teleological explanations rely on the inclusion of an agent has significant consequences for what it is capable of explaining. In the generic teleological explanation I sketched, “My chair has wheels so that it can be moved easily”, explains

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10 As I shall explain in Chapter 3, Aristotelian teleological explanations do not require intentional agency.
why my chair has wheels – for the purpose of being mobile. It does not tell us when or how my chair came to have wheels, but this is not unexpected. In general, teleological accounts do not need to include this information -- they must explain a phenomenon only in terms of a purpose or goal. Platonic teleological explanations, on the other hand, necessarily include an agent. This agent not only offers a rationale for why the state of affairs obtains, he is also the efficient cause of the state of affairs. In other words, the agent causes the state of affairs to obtain in the particular way that it does, at the particular time it does, and in the particular place that it does. Because Platonic teleological explanations include this account of efficient causation, they offer information that other teleological explanations cannot. Here we can offer an additional response to Aristotle’s criticism that Forms act as efficient causes. This is as follows:

PTE 2: This intelligent agent is also the “efficient cause” of the state of affairs. Socrates’ teleological explanation for why he is in jail is given in terms of what the relevant agents thought best. This is a third aspect of Platonic teleological explanations:

PTE 3: All intelligent agents, by virtue of being intelligent, act for the sake of one particular purpose: to bring about ends he judges to be the best ends possible.

The reason Socrates rejects bones and sinews as the cause sheds light on an additional aspect of Platonic Teleological Explanations. Socrates rejects these because the state of affairs being explained is why he is in jail given that all of his actions are performed with intelligence. Platonic teleological explanations presuppose Socrates’ specific conception of intelligent agents. This conception rests on three premises:
1. Intelligence, by nature, is good.

2. Intelligent agents act according to what they judge to be good.  

3. Order is good.

It follows that intelligent agents produce results that are ordered and good. In a passage in the *Gorgias*, Socrates argues that the intelligent and good orator will restore and maintain *taxis* and *kosmos* in the soul, just as a good physician will restore and maintain *taxis* and *kosmos* in the body (504a3-e4). In contrast to the physician, tyrants do not bring about good results because tyrants lacks intelligence (467a3-4). From this, we can conclude the following:

**PTE 4**: The degree to which the outcome is best is directly proportional to the degree to which the agent is intelligent.

There is a wide range of intelligence among potential agents in Platonic Teleological Explanations. We know this to be true because one of the reasons why Socrates is in jail is that the Athenians condemned him to jail, and this outcome is *not* the best possible outcome. The significance of the agent’s intelligence is relevant to understanding why Socrates is disappointed with Anaxagoras’ account. Given PTE 4, and given that *Nous* is a *supreme* intelligence, Socrates concludes that whatever *Nous thinks* is best, *is*, in fact, the best. For the same reason, the cosmic order *Nous* produces is necessarily the best possible order, because it is brought about by a supreme Intelligence who has knowledge

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11 “And a just man des just things? Now isn’t an orator necessarily just, and doesn’t a just man necessarily want to do just things. Therefore an orator will never want to do what’s unjust” (*Gorgias* 460b9-c9 Zeyl translation).
of what order is best. Given this conception of intelligence, goodness, and order,

Socrates expects Anaxagoras to do the following:

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 the reason why it must be so, telling me what was better, better, that is, that it should be like this… For I could not imagine that when he spoke of Nous as the disposer of them, he would give any other account of their being as they are, except that this was best (97e1-3).

In this account, Nous constitutes a genuine aitia because it guarantees the same result. An intelligent agent, by virtue of being intelligent, will always produce the same effect: the one he thinks is best. I summarize this as follows:

PTE 5: Regardless of the particular state of affairs being explained, every state of affairs is the same in the following respect: each is brought about because an agent believes it to be best.

I summarize all of these aspects as follows:

PTE (complete version): A state of affairs obtains because an intelligent agent thinks it is best. The degree to which the state of affairs is good is directly proportional to the degree to which the agent is intelligent. This agent is also the efficient cause of the state of affairs.

Socrates’ description of what he expected from Anaxagoras’ cosmology foreshadows Plato’s cosmological account in the Timaeus, which I discuss in Chapters 4 and 5. At the end of Socrates’ discussion of Platonic Teleological Explanations, he says that in his examination of different types of explanations as a youth he had hoped to learn more about the teleological explanation, but he was unable to find a teacher. This again
foreshadows the *Timaeus* discussion, where Plato develops the theory of explanation offered in the *Phaedo*. Since Socrates cannot explain anything further regarding teleological explanations, he begins his “second voyage” in search of a genuine *aitia* (99d1). In this search, he develops his Theory of Forms.

### 2.3 Two Types of Formal Explanations

As I explained in the beginning of this chapter, my discussion of Plato’s Formal explanations is motivated in part by Criticism 2, which represents Aristotle’s implicit suggestion that Plato is a “Formalist” who neglects material considerations in his explanations. Based on our examination of the *Phaedo* passage so far, it may seem unlikely that Plato fails to properly account for material explanation. His intellectual journey is motivated by his desire to find an explanation for generation, existence, and destruction, *in nature*. He is interested in questions about the physical world, such as how a human grows, and whether human thought requires blood, air, or fire (96b1-5). Socrates establishes the criterion for a genuine *aitia*, and finds that teleological explanations successfully invoke a genuine *aitia*. These teleological explanations are capable of accounting for physical events because they invoke an agent as the efficient cause of the state of affairs in question. In addition to accounting for physical processes in terms of efficient causation, Socrates incorporates the physical facts relevant to the explanation by identifying them as necessary conditions.

In light of the explanations Socrates has discussed so far, his Formal explanations strike us as particularly odd. For example, while one might expect that an account of a
beautiful object would make reference to its physical appearance, Socrates asserts that physical facts are completely irrelevant in explaining an object’s beauty. Instead, he states that an object is beautiful only by virtue of its participation in the Form Beauty. This explanation is an example of what he calls a “simple aitia”, a simple answer to the basic question, “Why is $x$ F?” in terms of his Theory of Forms. For this explanation to make sense, we must understand the notions of Forms and the “participation” relation, which are not yet clearly defined in the *Phaedo*. At this point in the dialogue, our understanding of the Theory of Forms is as follows: “$x$ is F because it participates in the Form for F,” where $x$ is an object and F is the quality for which there is a corresponding Form F. For example, Helen ($x$) is beautiful (F) because she participates in the Form Beauty (Form F). Socrates offers little insight into the notion of “participation” when he tells us that a thing participates in a Form, “whether by its presence or communion or whatever the manner and nature of the relation may be” (100d6).

The simple aitia appears to be a dissatisfying account of why Helen is beautiful. Socrates himself calls the simple aitia “safe” (asphales) as well as “simple” and “ignorant” (amathes, euethos) (100d8, e1; 101d1-3; 105b7-c1). A. E. Taylor agrees that the simple aitia is so “safe” that it is completely devoid of information. The simple aitia seems as vacuous as stating that opium induces sleep because it has a disposition to induce sleep. Similarly, given our preliminary understanding of a Form F as that in

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12 “But if anyone gives me as the reason why a given thing is beautiful either its having a blooming color, or its shape, or something else like that, I dismiss those other things” (100d5).
13 The official statement of the Theory of Forms is at 102a10 – several lines after his discussion of the simple aitia.
virtue of which a participating object is F, we could rephrase our answer to the question “Why is Helen beautiful?” with the reply, “Because she participates in the thing in virtue of which participating objects are beautiful.”

A closer reading of the text shows that while the simple aitia seems vacuous, it is in fact an explanatorily valuable statement that does metaphysical work. It becomes clear that whatever is true of the object’s F-ness (such as its beauty, or its hotness) is true in virtue of its participation in the Form F. From this, we can conclude that participation in the Form is both necessary and sufficient for an object’s F-ness. For example, participation in the Form Beauty is both necessary and sufficient for Helen’s being beautiful.

This lends insight into the explanatory value of the simple aitia. Given Socrates’ previous discussion about the genuine aitia, it is clear that he is interested in examining the link between the explanatory mode and the thing being explained. In teleological explanations, the link is as follows: the explanatory mode is the genuine aitia, an entity which, by virtue of its nature, guarantees a particular outcome. In this case, the link is as follows: the simple aitia (the explanatory mode) is necessary and sufficient for an object’s F-ness (the thing being explained). This is why mention of the blooming color and shape of a thing has no place in a simple aitia, because there is no set of physical attributes that are necessary and sufficient for Helen’s beauty. In the context of the Theory of Forms, it is clear the simple aitia is a substantive claim that posits the existence of an entity that does metaphysical work.
It is explanatorily impotent to state that opium induces sleep because it has a disposition to induce sleep. Alternatively an explanation for why opium induces sleep may be as follows: Opium induces sleep because it contains a certain ingredient that induces sleep when ingested. This explanation is useful because it provides additional information: It points to the presence of an ingredient that is responsible for opium’s ability to induce sleep. Compare this to the simple aitia: Helen is beautiful in virtue of her participation in the Form Beauty. This is also a substantive explanation because it posits the existence of an entity, the Form Beauty, which is responsible for Helen’s beauty. Thus, the simple aitia is a fundamental mode of explanation that accounts for facts about objects in terms of the Theory of Forms. It is “simple” and “safe” because, once accepting the Theory of Forms, the simple aitia follows immediately. Plato could not further develop his accounts of objects in the world without first establishing this axiom of his metaphysics.

The simple aitia answers the question, “Why is $x$ $F$?” in strictly Formal terms: $x$’s being $F$ is sufficiently explained by the fact that $x$ participates in the Form $F$. Plato then introduces his clever aitia as the “new, subtler” answer (105c1). It is clear that the clever aitia is not meant to be an improved version of the simple aitia – the simple aitia is sufficient for what it purports to explain. Plato’s clever aitia covers a different domain. Plato introduces the clever aitia as follows:

Thus, if you were to ask me what it is, by whose presence in a body, that body will be hot, I shan’t give you the old safe, ignorant answer, that it’s hotness, but a subtler answer now available, that it’s fire (105c1-5).
In what way is this explanation “clever”? In what follows, I consider two different interpretations of the clever aitia.

The traditional interpretation of the clever aitia, which I call the Form Entailment Interpretation, holds that the clever aitia accounts for phenomena in terms of connections between Forms. Proponents assume that, in the above passage, Plato means to posit the existence of a Form Fire. Thus, the way in which the clever aitia is “subtler” than the simple aitia is that it invokes two Forms instead of one: The body is hot because the Form Fire entails the Form Hot. In other words, the Form Fire is necessarily connected to the Form Hot, and this is why fire is hot. Paul Shorey, the most famous proponent of this interpretation, insists that the entire passage is concerned with logic, not physics, by claiming that Plato makes the following reduction: Physical facts are sufficiently explained by appeal to logical entailment relations among the Forms. The fact that fire is hot is reducible to the statement that the Form Fire entails the Form Hot.

Consider the answers the simple aitia and the clever aitia would give to the question, “Why is the flame hot?” The simple aitia says merely that the flame is hot because it participates in the Form Hot. The clever aitia is more advanced because it explains that the flame is hot because it participates in the Form Fire, and the Form Fire entails the Form Hot. But notice that this explanation still only accounts for why fire is...
hot; it does not explain how it is that fire makes other things hot. Since the simple aitia adequately explains why fire is hot, it is unlikely that the clever aitia is needed to explain the same thing. Moreover, the property of being hot is distinct from the ability to generate heat. For example, a person with a fever is hot, but it does not follow that he can make other things hot.

Along the lines of the Form Entailment Interpretation, Vlastos assumes that Plato is positing the Form Fire. But Vlastos rightly claims that the Form Entailment Interpretation does not adequately capture Plato’s intentions in the Phaedo passage. Plato seems to be saying more than just the fact that fire “makes” the body hot in the same way that two points “make” a line. He wants to know “what it is, by whose presence in a body, that body will be hot…” (105c1, italics mine). In light of Plato’s final discussion about the soul, it is clear that Plato intends to account for physical interactions in the sensible world. His argument is not about the theoretical existence of a soul; rather, he asserts that the soul actually exists in our bodies. Similarly, his question about fire’s presence in a body suggests that he is interested in an account of physical events. Such an account does not merely establish the fact that fire is hot, it must account for the fact that when fire comes into a body, that body will be hot. In other words, it shows that fire has the ability to make other things hot.

If this is the case, then we are faced with the question, how do Form entailments correspond to causal events in the sensible world? Vlastos explains that the entailments
between Forms do not have causal *agency*, but they do have causal *implications*.\(^{18}\) It is clear that Forms cannot be causal agents: The Form Fire (a non-sensible entity) cannot float down to the sensible world and ignite fires. Such a physical interaction would be impossible. Similarly, the law of gravity does not “make” things fall. One cannot credit a law with causal agency, but the law of gravity certainly has causal *implications*. It implies that *if* an object is dropped, *then* it will fall. Vlastos seems to suggest that Form entailment relations would bear a similar relation to the sensible world: The fact that the Form Fire entails the Form Hot “implies” that, *if* there is fire in the sensible world, then there is hotness. Unfortunately, Vlastos does not go any further in filling out this theory that the Forms have causal implications. If he had, he may have noticed some of the problems the Form Entailment Interpretation still faces.

Even if we incorporate Vlastos’ suggestion that Form entailments have causal implications, the Form Entailment Interpretation is still problematic. The general statement, “If there is fire, then there is hotness” is a “static” explanation: It explains why fire is hot, but it does not account for any activity involving fire. In Plato’s explanation of the clever *aitia*, it becomes clear that he is not just seeking to explain “static” phenomena, such as an object’s being F, but also “active” phenomena, such as events. I claim that the Form Entailment Interpretation cannot adequately account for active phenomena. I depict these problems in the following diagrams:

The Form Fire entails the Form Hot. This is why fire is hot.

Fire is somehow able to make the rock hot. According to the previous diagram, it is fire’s participation in the Form Fire that makes the fire hot.

According to the Form Entailment Interpretation, the entailment relation between the Form Fire and the Form Hot is Plato’s “clever” answer for why bodies are hot.

But this means that fire makes the rock hot in the following way: the rock
participates in the Form Fire, the Form Fire entails the Form Hot, and so the rock is hot.

**Figure 3: Physical fire approaches a rock**

But this is absurd! What happens when rock participates in the Form Fire? Formal explanations account for a thing’s being F. It follows that, if a rock participates in the Form Fire, then the rock is fire. Does this mean that the rock has to first become a fire in order to become hot? Of course, this is odd.\(^\text{19}\)

Let us see if some changes will help. Previously, we said that fire makes other things participate in the Form Fire, and that the Form Fire entails the Form Hot. Perhaps we can take out the middle man: Fire has the ability to make other things participate in the Form Hot without making them participate in the Form Fire first, and it has this ability in virtue of its participation in the Form Fire.

\(^{19}\) Evidence that Plato would not believe such a thing comes in the *Timaeus*. Fire causes water to evaporate *not* because it causes water to become fire, but because it causes the shapes of water’s “particles” to change.
Figure 4: Physical fire makes the rock participate in the Form Hot

This is more plausible than the first scenario, because it does not suppose that fire causes other things to become fire in order to be hot. But as I will explain, there is a fatal problem for the Form Entailment Interpretation that still remains.

The problem is that Forms are not able to account for degrees of participation. In other words, the Forms are powerless in determining just how hot the rock will get. Consider Plato’s description of hot and cold: When cold encounters its opposite, hot, cold either “retreats” or “perishes” (105a). Proponents of the Form Entailment Interpretation would attempt to account for this in terms of the Forms. It is true that the Form Hot may exclude the Form Cold. Certainly, it cannot be the case that the Form Cold retreats or perishes when it encounters the Form Hot, because Forms are non-physical, and thus incapable of retreating or perishing at all.
Using Vlastos’ suggestion, perhaps proponents of the Form Entailment Interpretation could say instead that there is some entailment among Forms that has “causal implications” for this event. As I explained before, the law of gravity does not cause things to fall, but it implies that when things are dropped, they will fall. Similarly, perhaps there is something in the Form Hot that dictates that cold things will retreat when encountering hot. But how can a web of Form-entailment relations explain why cold and hot things either retreat or perish?

Modern science provides an explanation for this using the first law of thermodynamics. This is a general formula that allows us to predict the rate of change in temperature of any object. If we place a hot object near a cold object, we can predict the rate at which the cold object will “retreat”, and whether or not it will eventually “perish”, depending on the objects’ relative mass and temperature.\(^{20}\) When we say that cold things “sometimes retreat and sometimes perish” we are not implying that their behavior is unpredictable. Rather, it is the case that the cold things either retreat or perish (or cause the hot thing to retreat or perish) depending on the conditions. Because objects in nature behave regularly, modern science is able to both explain and predict the behavior of objects in general terms.

Previously, I claimed that the Forms and the law of gravity are similar in the following ways: Neither has causal agency, but both are general laws that govern causal interactions in the sensible world. But this is where their similarities end. Plato’s Theory

\(^{20}\) We also know that thermal equilibrium will be reached. This is something Plato did not account for.
of Forms is far more limited than modern science. So far, we have only been able to plausibly interpret Forms as explaining “static” phenomena – why a thing is the way it is. It is possible that the Form Fire determines all of the necessary properties of sensible fires, including their hotness. But the Form Fire is incapable of dictating the kind of activity described above. In the scenario above, a cold thing, in a particular location at a particular time, is gradually warming up at a certain rate. In Plato’s terms, this cold thing is participating in the Form Cold to a lesser and lesser degree, and participating in the Form Hot to a greater and greater degree. But there is nothing in the theory of Forms that can explain why an object comes to participate or ceases to participate in a Form at one particular time or another, or why its degree of participation changes at a particular time and a particular location.

Here, I offer what I call the Material Power Interpretation, which avoids the shortcomings of the Form Entailment Interpretation while preserving Vlastos’ intuition that the clever aitia has “causal implications”. First of all, there is no reason to assume that there is a Form Fire, because Plato never explicitly mentions it in this passage.21 The existence of a Form Fire is not implausible, but the fact that the Form Fire is absent in this passage is significant. If we regard fire as a physical material, we can offer the following explanation of why fire causes other things to become hot: The flame is hot because it is fire. All fire, because of some brute fact about its material nature, makes other things hot. That is why you can warm your cold feet by the fire. It is also why a

21 Plato does not use the term ‘Form’, but it is clear when he is referring to Forms. For example, he mentions “the Beautiful itself,” meaning the Form Beauty. The Form Fire never appears in the Phaedo, but it does appear in the Timaeus (51b8) and the Parmenides (130c1-4).
ball of snow melts when it is placed near fire. We can still preserve the Forms in this description: Perhaps fire makes your feet participate in the Form Hot to greater and greater degrees. But because the Forms are incapable of accounting for change, Forms cannot explain why your degree of participation in the Form Hot is increasing, when it is increasing, and at what rate – only fire can explain this change in participation.

On this interpretation, the clever aitia serves a purpose. The simple aitia already constitutes an adequate explanation of why fire is hot; now the clever aitia is needed as an explanation of how other things become hot. The clever aitia explains this phenomenon in terms of the material’s ability to affect other materials; thus, the material has explanatory power, not just the Form. In this way, the clever aitia is, as Plato calls it, “subtler”; it is a hybrid of a Formal account (Fire is hot because it participates in the Form Hot) that also invokes matter as an explanatory mode (fire can make other things hot because of the type of material it is).

One may argue that an explanation invoking material cannot be plausibly attributed to Plato because, earlier in the Phaedo, Plato appears to rejects matter as a reliable source of explanation. Socrates criticizes those who would explain that Socrates is in jail because his bones and sinews are arranged in a seated position. He says, “to call such things [as his bones and sinews] reasons is quite absurd” (99a5), because the very same bones and sinews that “caused” him to sit in jail could just as easily carry him off to exile in Megara. In the first section of this chapter, I argued that Socrates’ rejection of the particular mechanistic explanations he considers is not an indication that he is opposed to the idea that matter may play a role in an explanation. He is interested in
examining the relationship between the *aitia* and the thing being explained. He rejects bones and sinews because they can cause two opposite results. Thus, they do not constitute a genuine *aitia*, a causal entity which, by virtue of its nature, guarantees the state of affairs in question. Similarly, matter is not a candidate for a simple *aitia*, because matter cannot offer the necessary and sufficient conditions for an object’s F-ness.

Socrates’ clever *aitia* is clearly intended to explain physical processes, such as “what it is, by whose presence in a body, that body will be hot.” As I explained in the first section of this chapter, this is consistent with what Socrates states is the goal of his investigation: to find an explanation for generation, existence, and destruction in the natural world.

We may plausibly interpret Plato’s clever *aitia* as a hybrid explanation that invokes both matter and Form as explanatory modes. Plato’s formulation of this type of explanation indicates that he has the theoretical resources to incorporate matter as an explanatory mode. We emerge with a more favorable impression of Plato’s theory of explanation: His theory does not require all explanations to be exclusively Formal; rather, it is a more nuanced theory that incorporates other modes, such as matter, as legitimate explanatory bases. We have also shown that Criticism 2, according to which Plato is a Formalist who neglects material considerations, is misguided.
3. Explanation in the Republic

Plato’s theory of explanation evolves from the Phaedo over the course of his middle and late dialogues, most notably in the Republic and the Timaeus. Central to any examination of Plato’s theory of explanation are the questions of whether and how Plato correctly distinguishes among three explanatory modes: matter, form, and telos. His success at doing so is called into question by Aristotle’s criticism of the Phaedo, in which Aristotle claims that Plato commits himself to the unreasonable conclusion that Forms are efficient causes. Moreover, Aristotle’s more general criticisms suggest that Plato’s metaphysics renders him incapable of properly accounting for matter in his explanations. In the previous chapter, I demonstrated that both criticisms are misguided. More strongly, the theory of explanation offered in the Phaedo shows quite the opposite of what Aristotle suggests: not only is Plato’s conception of each explanatory mode correct, his use of these modes in his explanations is highly sophisticated. To begin with, Plato’s account of “simple” Formal explanations explains why it is impossible for Forms to function as efficient causes; thus, it is clear that Plato does not conceive of Forms as efficient causes. Contrary to Aristotle’s claim, I argued that Plato’s account in the Phaedo does not inadvertently commit him to this wrongheaded conflation either. I showed that it is plausible to interpret Plato’s explanations in this passage as ones that combine explanatory modes without fallaciously conflating them. For example, Plato’s teleological explanations combine efficient causation with telos. His “clever” type of
Formal explanation combines both material considerations and Forms as explanatory modes. These explanations are not only legitimate, they also bear explanatory power.

According to my arguments in the previous chapter, Plato does not make the mistake of conflating modes of explanation in the *Phaedo*. In this chapter, I address the question of whether and how Plato differentiates between Form and *telos*, in the *Republic*. This question is motivated in part by Aristotle’s account of the “formalists”, a group which likely includes Plato. The “formalists” are those who base their explanations entirely on formal or teleological considerations while completely disregarding the role of matter. It is significant that Aristotle suggests that the “formalists” themselves combine *form* and *telos* in some way – the issue of how Aristotle regards *form* and *telos* in his own theory of explanation is secondary. Here I focus on the question of whether Plato (as one of the “formalists”) combines these two modes in any way.

Plato’s discussion of Forms in the *Republic* is particularly relevant to this question. From the “simple” and “clever” Formal explanations of the *Phaedo*, Plato develops the Theory of Forms substantially in the *Republic*. In addition, he introduces a unique type of Form, the Form of the Good. It is the issue of the Form of the Good that constitutes the most significant motivation for investigating Plato’s treatment of Form and *telos* as explanatory modes. It is sometimes assumed¹ that the Form of the Good in the *Republic* inherits the function of what Socrates refers to in the *Gorgias* and elsewhere

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¹ For example, Santas seems to make this assumption. I discuss this later in this chapter. (Santas, Gerasimos. 1999, 'The Form of the Good in Plato’s Republic', *Plato 1: Metaphysics and Epistemology*. Edited by Gail Fine (New York: Oxford University Press, 1999) 47-274.)
simply as ‘the good’, namely the ultimate object of all human desire, and therefore the ultimate goal of all deliberate action. Since these are both undeniably teleological notions, this can give rise to the idea that the prominence of the Form of the Good in the Republic in some way reflects an endorsement by Plato of teleological explanation, and that he sees formal and teleological explanations as all of a piece. If this is the case, then it makes sense for Aristotle to regard Plato as a “formalist” who combines formal and teleological explanations.

The first thing to note in this connection is that the Republic (in contrast to both the Phaedo and the Timaeus), does not directly address the issue of adequate explanation generally, much less the more specific issue of what sorts of explanation are applicable to natural phenomena. Consequently, any evaluation of the suggestion just introduced will have to be indirect and somewhat speculative. Nonetheless, I think it is possible to raise a number of considerations that cast doubt on the suggestion that Plato’s doctrines in the Republic imply the appropriateness of teleological explanation of natural phenomena.

To begin with, there are good philosophical reasons for thinking that the theoretical resources provided by the Theory of Forms are simply too meager to accomplish the work of teleological explanation. My first task (Part 1) is to demonstrate that the Theory of Forms in general in the Republic does not have a teleological component. This lays the groundwork for Part 2, in which I narrow my focus to the

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2 Since the Form of the Good (like all Forms) is entirely separate and independent of the sensible realm, which is the arena of human action, it would be more accurate to say that the goal of human action is to come into some relationship (e.g., instantiation or emulation) with the Form of the Good.
distinction between the epistemological and metaphysical functions of the Form of the Good and teleological explanations, respectively.

3.1 Contrasting Platonic Teleological Explanations to the Formal Explanations Suggested in the *Republic*

In order to demonstrate that the Theory of Forms in the *Republic* does not have a teleological component, I contrast the Formal accounts offered in the *Republic* to teleological accounts of the same object so as to bring to the surface the differences between the two accounts. Of course, in order to properly compare Formal and teleological explanations *qua types* of explanation, the *explanandum* of each explanation must be the same. But Plato never offers a teleological explanation and a Formal explanation of the same phenomenon. Thus, I adopt an oblique approach, one that is similar to indirect methods of proof in mathematics. I construct a hypothetical Formal explanation of a phenomenon such that it resembles a teleological explanation of that same phenomenon as closely as possible. The very process of trying to do this construction ultimately shows that the construction cannot be done, because the differences between the two types of explanations are insurmountable. The advantage of this approach is that I do not just show *that* the two explanations differ, but *exactly how* they differ. Ultimately, this examination demonstrates that the Formal explanations in the *Republic* do not represent an integration of Formal and teleological considerations.
3.1.1 Platonic Teleological Explanations

Platonic teleological explanations are distinct from non-Platonic teleological explanations. There are several types of non-Platonic teleological explanations; for present purposes, I shall sketch what a general account may look like: A teleological explanation for \( x \) is one in which a purpose or goal is cited in the explanation for \( x \). For example, “My chair has wheels so that it can be moved easily”. The purpose, to be movable, is the reason why my chair has wheels. Platonic teleological explanations have several features that this one does not. Here is a snapshot of what those features are.

‘PTE’ stands for ‘Platonic teleological explanation’.

PTE 1: There is an intelligent agent whose desires, intentions, or beliefs constitute the reason why the state of affairs obtains. For example, Socrates’ desire to do what he thinks is best is the reason he is in jail.

PTE 2: This intelligent agent is also the “efficient cause” of the state of affairs.

PTE 3: All intelligent agents, by virtue of being intelligent, act for the sake of one particular purpose: to bring about ends he judges to be the best ends possible.

PTE 4: The degree to which the outcome is best is directly proportional to the degree to which the agent is intelligent.

PTE 5: Regardless of the particular state of affairs being explained, every state of affairs is the same in the following respect: each is brought about because an agent believes it to be best.
PTE parts 1 and 2 represent the most significant feature of Platonic teleological explanations in the *Phaedo*: such explanations require an intelligent agent. We can gain insight into why this is the case by examining Plato’s motivation for offering teleological explanations in the first place. Plato needs teleological accounts in order to explain the reason why a phenomenon is the way it is. In his paradigmatic example of a teleological explanation, Plato states that Socrates remains in jail because he believes that it is best that he does so. An account of the movement of his bones and sinews does not constitute an adequate explanation of why he is in jail, such an account only describes how he came to be in jail. Plato’s standard for what makes an explanation adequate is that it must explain the “reason why” a state of affairs obtains. Since bones and sinews have no intelligence, they cannot supply the “reason why” – only an intelligent agent can have a reason why. Because of this, Plato’s teleological explanations require an intelligent agent; only an intelligent agent can have beliefs, desires, or intentions that constitute the reason why he brings about a state of affairs.

The example of Socrates’ incarceration in the *Phaedo* should not mislead us into thinking that teleological explanations are intended to explain human action only – they are also considered to be the superior type of explanation for natural phenomenon. The *Phaedo* passage begins with Socrates’ inquiry into “the reason for coming-to-be and destruction.” He looks to the accounts of natural philosophers for an answer. According to one such explanation, the earth is in the center of the universe because certain physical processes (such as the motion of air, water, and aether) caused it to be there. Plato rejects this explanation as being “absurd”, because it only explains how the earth came to be in
the center, but not the reason why the earth is in the center. Physical processes cannot supply the “reason why” because they are purposeless forces that are governed by chance or blind necessity. Here, we learn of Plato’s conviction that the natural world is the product of intelligent design rather than chance or necessity. Plato offers a teleological explanation in place of the mechanistic one: the earth is in the center of the universe because the intelligent agent who crafted the universe thought it best for the earth to be in this position. Here again, Plato’s explanation requires an intelligent agent because he wants to explain the “reason why” nature is the way it is, and only an intelligent agent can have intentions which could constitute a reason why. PTE part 1 represents this requirement.

Plato conclusion that an agent is necessary is based on the following assumptions:

1. Nature is the way it is for a reason.
2. Only an intelligent agent can have a reason.

From this, Plato concludes that there is an intelligent agent who crafts nature according to this reason. In contrast, Aristotle offers an interpretation of a purpose-driven nature, but he does not adopt this line of argument. In particular, he rejects premise #2. Consider, for example, the following Aristotelian teleological explanation: a spider builds a web for the purpose of trapping its prey. According to this explanation, the spider does not have the intention of building the web for the purpose of trapping its prey, nor does he have the belief that building the web will accomplish this end; rather, he does so “by nature”.

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3 Socrates does not mention the Divine Craftsman here in the Phaedo. But it is nevertheless clear he believes that there is some intelligent agent who designed the natural world.
According to Aristotle, every natural thing has some kind of “internal principle” (Physics II 8) such that each natural thing moves towards its own end without the conscious intention of doing so. Aristotle’s teleology does not require an agent who manipulates nature for the sake of some end; instead, nature fulfills its own telos via a non-intentional “principle” that is inherent in it. This is not to say that Aristotle’s teleology excludes the inclusion of an agent whose desires and actions are the aitiai for the particular end in question – he does offer teleological explanations of this type. The point is that Aristotle’s teleology does not require a conscious, intelligent, and purposeful agent, whereas Plato’s teleology does.

I have discussed the example of Aristotelian teleology because it demonstrates the fact that a teleological view of nature need not require the positing of an agent. Most of Plato’s teleological accounts of natural phenomena are in the Timaeus, and in that dialogue Plato posits the existence of a Divine Craftsman as the intelligent agent who crafts the cosmos. There is debate as to whether or not the Divine Craftsman should be taken literally or whether it is merely a figurative device. The argument that the Divine Craftsman is merely figurative relies on the possibility that teleology can be agent-less, and Aristotle’s teleology demonstrates this possibility.

However, any claim that the Divine Craftsman is figurative does not undermine my argument that the “intelligent agents” of Platonic teleological explanations in the Phaedo are not meant to be taken figuratively. Socrates of the Phaedo asserts that teleological explanations require an agent, because only an intelligent agent can have the desire to do what is best and capacity to judge what he thinks is best, as Socrates does.
when he decides to remain in jail. Similarly, an account of natural phenomena requires an intelligent agent who has the intention to make things the best way possible, and who can judge which arrangement he thinks is best.

The fact that these Platonic teleological explanations rely on the inclusion of an intelligent agent has significant consequences for what the account can explain. Refer back to the generic teleological explanation I sketched in the beginning of this section: “My chair has wheels so that it can be moved easily”. This teleological account explains why my chair has wheels – for the purpose of being mobile. It does not tell us when or how my chair came to have wheels, but this is not unexpected. Teleological accounts do not need to include this information -- they must only explain a phenomenon in terms of a purpose or goal. Platonic teleological explanations, on the other hand, necessarily include an intelligent agent, and this agent is not only the source of the reason why the state of affairs obtains (PTE Part 1), he is also the efficient cause of the state affairs (PTE Part 2). In other words, the intelligent agent causes the state of affairs to obtain in the particular way that it does, at the particular time it does, and in the particular place that it does. Because Platonic teleological explanations include this account of efficient causation, they offer information that other teleological explanations cannot.

Most non-Platonic teleological explanations account for a phenomenon in terms of whatever purpose or end is relevant to the explanation; for example, my chair has wheels for the sake of an end, which is to be mobile; I exercise for the sake of an end, which is to be healthy. Platonic teleological explanations are unique because the end is always the same regardless of the phenomenon being explained: the end is to obtain the
state of affairs the agent believes to be best. For example, Socrates stays in jail for the sake of an end, which is to obtain the state of affairs he thinks is best; the intelligent agent positions the earth the way he does for the sake of the same end, to obtain the state of affairs he thinks is best. As I explain in PTE part 3, according to Plato, intelligent agents by virtue of their intelligence necessarily desire what they judge to be the best possible end. This is one of the reasons why the Socrates of the *Phaedo* is disappointed with Anaxagoras’ account: According to this account, a force called “Mind” (*Nous*) orders the universe. Socrates assumes that this force, by virtue of being intelligent, necessarily orders the universe according to what is best. Socrates says: “For I could not imagine that when he spoke of Mind (*Nous*) as the disposer of them, he would give any other account of their being as they are, except that this was best” (98b1). From the fact that the agent is intelligent, it follows necessarily that the results he brings about are the ones he thinks are best.

This conclusion prompts the question answered in PTE part 4 and 5: What does Plato mean by “best”? In Socrates’ critique of Anaxagoras in the *Phaedo*, he says: “And I supposed that in assigning the reason for each individual thing, and for things in general, he’d go on to expound what was best for the individual, and what was the common good for all” (98b1) This suggests that what is “best” in a teleological explanation refers to what is best for the individual as well as what is best for the whole. Socrates’ teleological account of his jail sentence supports this interpretation of “best”. Socrates remains in jail not only because he thinks it is best for him, but also because he believes it is best for the sake some wider system, in this case, it is best for the sake of
Athens that he remains in jail. It is best for Athens because, as Socrates explains in the
*Crito*, his observance of Athenian laws preserves their integrity.

According to Socrates’ suggestion of what Anaxagoras’ account should have
been, the intelligent agent makes the earth spherical because he thinks this is best (97d8-
e1). Does the agent think it is best for the earth’s sake that it is spherical, or does he think
that it is best for some wider system that earth is spherical? Plato does not answer this
question in the *Phaedo*, but he does so in the *Timaeus*:

And for shape he gave it that which is fitting and akin to its nature. For
the living creature that was to embrace all living creatures within itself, the
fitting shape would be the figure that comprehends in itself all figures
there are; accordingly, he turned its shape rounded and spherical,
equidistant every way from center to extremity – a figure the most perfect
and uniform of all; for he judged uniformity to be immeasurably better
than its opposite (*Timaeus* 33b-c Cornford translation).4

It is best for earth that it is spherical because this shape is most conducive to earth’s
function, which is to house all other living creatures. One may plausibly suppose that
having a spherical earth is also best for the wider system of heavenly bodies. The good
functioning of the system of heavenly bodies depends on the coordination of all of the
bodies, and perhaps a spherical earth is more conducive to this coordination than a
differently-shaped earth would be.

We can summarize the Platonic teleological explanations as follows: A state of
affairs obtains because an intelligent agent brought it about. He brought it about because
he thought that the state of affairs is best; where “best” is understood as that which is best

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4 All citations of the *Timaeus* are from Cornford’s translation. (Cornford, Francis M. 1935, *Plato’s Cosmology: The
Company, 1997).
for an individual, as well as that which is best for the larger system. In the case of functional objects, “best” means what is best for the object given its function.

### 3.1.2 Formal Explanations

In the previous section, I offered an interpretation of what a Platonic teleological explanation is, and I examined Plato’s teleological explanation of why the earth is spherical: The earth is spherical because an intelligent agent gave the earth this shape, and he did so because he thought that the sphere is the best shape for earth given its function, and because he thought that having a spherical earth is best for the system of celestial bodies. Here, I attempt to construct a Formal explanation for the same phenomena.

In Chapter 1, I discussed Plato’s Theory of Forms in the context of the simple aitiai in the *Phaedo*. Here I examine the account of the Forms as it is developed in the *Republic*. In Santas’ influential article on the accounts of goodness in the *Republic* he considers ways in which a Formal explanation may account for the goodness of a sensible object. A Formal explanation answers the question “What makes $x$ a good object of its kind?” by appealing to the particular Form in which $x$ participates. For example, a knife is a *good* knife insofar as it participates in the Form Knife. I call this the theory of ‘good$_F$-ness’ because it accounts for goodness in terms of Forms. Here are two examples of explanations of good$_F$-ness:

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**Functional Account:** Any functional object\(^6\) is a good\(_F\) insofar as it functions well, and it functions well in virtue of the degree to which it participates in the Form corresponding to the kind to which it belongs.\(^7\) For example, knife is a good\(_F\) knife because it functions well, and it functions well because it participates in the Form Knife to a great degree.

**Resemblance Account:** \(x\) is good\(_F\) insofar as it resembles the Form corresponding to the kind to which it belongs. This interpretation is based on the principle of Self Predication. For example, the Form Circle is itself a circle. A circle is good\(_F\) if it participates in the Form Circle to the great degree and closely resembles the Form Circle.

Some of the interpretations I assume here are notoriously problematic, such as the theory of Self-Predication and the theory that Form determines function. My strategy in this section is to adopt whatever plausible interpretation allows me to construct a Formal account that most closely lines up with the teleological one, with the ultimate goal of showing that no matter how liberally one may interpret Formal explanations, it cannot account for everything a teleological explanation does. This proves that it is unreasonable to think that the Formal explanations of the *Republic* contain a teleological component. With this particular strategy in mind, I offer a way to resolve another

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\(^6\) This is based on *Republic* 353a10.

\(^7\) Singpurwalla (2006) criticizes Santas’ interpretation of the relationship between a thing’s function and the Form in which the thing participates. For present purposes, I can sidestep this issue, and subscribe to the plausible interpretation according to which a thing has its function in virtue of its Form. (Singpurwalla, Rachel. 2006, ‘Are There Two Theories of Goodness in the Republic? A Response to Santas’, *Apeiron* 39: 319-330.)
problematic assumption: ⁸ It seems odd to think that an object could have a function in virtue of its Form, given that Forms themselves do not have function. For example, according to the theory of Self-Predication, The Form Wheel is itself a wheel. Since the Form Wheel, like all Forms, is necessary immovable, it cannot rotate. How could it be that a sensible wheel rotates in virtue of its participation in something necessarily unmoving? Here is one explanation: How well a wheel rotates is determined by its structure and organization. According to the Resemblance Account, a sensible wheel has the particular structure it does because it resembles the Form Wheel. The Form Wheel has the ideal structure for a wheel even though it, itself, cannot rotate.⁹ For this reason, a sensible wheel which most closely resembles the ideal structure of the Form Wheel is one that rotates best.

Given these interpretations of Formal explanations, how might we construct a Formal account of the earth?

**Basic Formal Account of the earth**: Recall the basic Formal explanation: “x is F because it participates in the Form F”. We may say “The earth is a planet because it participates in the Form Planet”.

**Functionality Account of the earth**: This account connects participation to function in the following way: Earth performs its function well (that of housing other living bodies) because it participates in the Form Planet to a great degree.

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⁹ If the Form Wheel could move, it would rotate perfectly.
Resemblance Account of the earth: This connects participation to structure:

According to the theory of self-predication, the Form Planet is a planet, and it is likely the case that the Form Planet is spherical. According to the Resemblance account, a sensible object resembles the Form in which it participates. The earth is spherical because it resembles the Form Planet to a great degree.

The functional account connects participation to function, and the resemblance account connects participation to structure. But many sensible objects function by virtue of their structure. For example, it is reasonable to suppose that, just as the wheel’s structure enables it to rotate, the earth’s spherical shape allows it to fulfill its function.\(^{10}\) In light of this, perhaps one may offer the following:

Combined Formal Account of the earth: Because the earth participates in the Form Planet to a great degree, the earth functions well. It is also in virtue of earth’s great degree of participation in the Form Planet that the earth closely resembles the Form Planet. Since the Form Planet is spherical, so too is earth. Though the Theory of Forms does not offer this conclusion explicitly, we may still reasonably suppose that the spherical shape is part of what enables the earth to function well.

Now, we can contrast the Formal account of the earth to the teleological account:

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\(^{10}\) In fact, we know that Plato thought this was the case. In *Timaeus* 33b, Plato explains how the spherical shape is conducive to the earth’s function of housing other living bodies.
Platonic teleological account of the earth: The earth is spherical because the intelligent agent made it that way, and he did so because he thought this shape is best for earth given its function.

Combined Formal account of the earth: The earth has its shape and function in virtue of its participation in the Form Planet. It is likely that the earth’s spherical shape enables it to perform its function.

There is significant overlap between these two explanations. One way in which they overlap is that both explanations account for earth’s spherical shape. But this is problematic: If earth is spherical because it participates in the Form Planet, then it is not the intelligent agent who determines its shape. If, on the other hand, it is the intelligent agent who determines earth’s shape, then it is not the case that earth has its shape in virtue of participating in the Form Planet. In other words, one of the explanations is superfluous. The second way in which they overlap is that both account for the earth’s spherical shape in terms of its function: According to the teleological account, the earth is spherical because the agent thought this shape is best for earth’s function; according to the Formal account, the earth has its spherical shape and function in virtue of participating in a Form, and it is likely that its shape enables it to function. The problem is this: If the earth has its shape and function in virtue of participating in the Form Planet, then why does the intelligent agent need to evaluate the situation in order to figure out which shape is best for earth’s function? Once again, one explanation must be superfluous.
Of course, my purpose in constructing the two accounts in this way is to demonstrate that such a construction is misleading. Here I offer two ways in which the accounts differ. First, it may be the case that, while the Formal explanation can account for the function of an object such as a wheel, it is unable to account for the function of the earth. According to the *Timaeus*, the Divine Craftsman crafts the earth for the purpose of housing all other living bodies (33b). Here, function is not a primitive fact about the earth; rather, it is determined according to the needs of the system. Additionally, the earth’s function is relational – it is defined in terms of earth’s relationship to other living things. It is unlikely that participation in the Form Planet can account for a function that is necessarily systematic and relational, since Forms cannot account for relationships among objects.

Perhaps one may argue that Form Living Being accounts for relational and systematic functions since it is the model according to which the Divine Craftsman crafts a *system*, the cosmos. Perhaps it is in virtue of participating in the Form Living Being that the cosmos has an earth whose function it is to house living things. But even this Formal explanation of the cosmos does not adequately account for earth’s function. The Form Living Being is an unmoving and eternal entity. The Divine Craftsman models the cosmos based on this Form, but this task is not simply a matter of copying what is in the Form since the cosmos exists in *time* while the model does not. It is perhaps comparable to composing a piece of music, something that moves in time, based on a piece of art, which does not move through time. The Divine Craftsman must figure out how to modify whatever is suggested by the model so that it can exist in time, and this is task for
which the Form cannot guide him. It is reasonable to suppose that the Divine Craftsman determines earth’s function given its role in the system of the sensible cosmos, and that this function is not determined by participation in a Form.

There is a second insurmountable difference between Formal and Platonic teleological explanations. Like the first difference, this one also shows that the teleological explanation can account for phenomena which the Formal explanation cannot. The Formal account answers the question:

FQ: “Why is the earth spherical?”

The teleological account of the earth answers the following additional question:

TQ addition: How did the earth come to be spherical?

In the previous section, I described several ways in which a Platonic teleological explanation differs from other teleological explanations, one of which is PTE, Part 2: There is an intelligent agent who is the efficient cause of the state of affairs. In this case, the Platonic teleological explanation of the earth tells us that the intelligent agent makes the earth, and that answers the question, T-Q1: “How did the earth come to be spherical?” Lennox makes a similar point: “Or, to put it in a manner Aristotle was fond of, given the theory of form-explanation in the Phaedo, we will still need a theory of why things come to have the features they do as and when they do.”11 The efficient component of the teleological explanation provides an answer as to how and why the earth came to be

spherical at the particular time that it did, in the particular place that it did, and in the particular way that it did.

In Chapter 1, I explained that a Formal explanation cannot answer the question of how the earth *came to be* spherical because Formal explanations cannot account for change. While it may be true that at one moment, the earth is not yet spherical because it only participates in the Form Planet to a small degree, and at the next moment, the earth is spherical because it participates in the Form Planet to a great degree, a Formal explanation cannot account for the *change* in the degree of earth’s participation. How could *change* be explained strictly in terms of Forms, given that Forms themselves are incapable of producing change? It is only possible to account for change in terms of a thing that capable of effecting change, such as an object in the sensible world. A Formal explanation can only account for certain facts that are true about objects in virtue of its participation in a Form; it cannot account for how or when this participation relation obtains.

But now one might ask: Is this efficient explanation the *only* significant feature of the teleological explanation that the Formal explanation lacks? If the only *significant* difference between the teleological explanation and the Formal one is the presence of an agent to serve as the efficient cause, then why not eliminate the teleological explanation and replace it with the Formal explanation that has some independent efficient explanation attached? In other words, replace *teleological* with *Formal + efficient*. The Formal explanation accounts for all of the earth’s features in terms of earth’s
participation in the Form Planet, and any “attached” efficient explanation could explain how the earth came to have these features in the sensible world.

This amounts to the question, what does the teleological explanation of the earth’s coming-to-be offer that a combination of Formal and efficient explanation cannot? Here are two examples of questions that a teleological account answers which a neither Formal nor an efficient explanation can: (1) Why did the earth come to be? (2) Why was the earth created at t2 rather than at t1? An efficient explanation accounts for the series of causal events that resulted in the existence of the earth. But it does not explain why it was created. This relates back to Socrates’ criticism of mechanistic accounts in the *Phaedo*. He rejects the account that says that physical processes caused the earth to be in the center, because “physical processes” lack intelligence and purpose. “Physical processes” explain how the earth came to be in the center, but Socrates wants to know why. According to the mechanistic account, the reason why the earth is in the center is because of chance or blind necessity, but for Socrates this is “no reason at all”. Similarly, an efficient explanation cannot tell us “the reason why” the earth came to be, it can only tell us how.

For the same reason, the efficient explanation cannot tell us why the earth was created at t2 rather than t1. According to an efficient explanation, the earth was created at t2 because something physically caused its creation at t2. As in the case of the mechanistic account, this tells us that the “reason why” something caused earth’s creation has to do with the nature of cause and effect, and the “reason why” it was created at t2 rather than t1 has to do with chance or blind necessity. These do not constitute “reasons
why” according to Plato. Of course, the Formal explanation cannot answer these questions either. The Formal explanation accounts for certain facts that are true about the earth in virtue of the earth’s participation in the Form Planet, but it cannot account for anything regarding time, place, or change.

The nature of a teleological explanation is such that it can answer this question of why the earth came to be as it did, when it did, and where it did. Consider these teleological explanations regarding the earth:

T-earth1: The reason the earth was created at all is that the Divine Craftsman thought it best to create the earth.

T-earth2: The earth was created at a particular time and a particular location, and in a particular fashion, because the Divine Craftsman thought this time, location, and fashion was best.

T-earth3: The earth is spherical because the Divine Craftsman thought that the sphere is the best shape for earth.

T-earth4: The earth is spherical because the Divine Craftsman thought this shape is most conducive to the earth’s functioning (that of housing other living bodies) – in other words, because it is best.

T-earth5: The earth is spherical because the Divine Craftsman thought that the cosmos would function best with a spherical earth – in other words, because it is best.

Previously in this section, I suggested that the Divine Craftsman either determines or refines earth’s function. I did not list that account here, because it is not explicitly stated
in the text. T-earth1 and T-earth2 answer the questions that the Formal and efficient explanation could not: Why was the earth created at all, and why was it created at the time and place it was, and in the fashion it was? The Platonic teleological explanation answers these questions in terms of the craftsman’s intentions, thus, it accounts for the “reason why”.

3.1.3 Conclusion

My strategy in this section was to adopt whatever plausible interpretations of Formal explanations in the Republic that allowed me to construct a Formal account of earth resembling the teleological account of earth as closely as possible. Ultimately I demonstrated that such a construction is impossible. I used this approach because it not only demonstrates that there are insurmountable differences between the two types of explanations, it also brings to the surface what these insurmountable differences are. The Formal explanation answers the question “What is true about earth in virtue of its participation in the Form Planet?” My initial construction suggested that the answer is that the earth is spherical and functions well in virtue of its participation in the Form Planet, and that it is its spherical shape that enables the earth to function well. The Platonic teleological explanation also accounts for earth’s spherical shape in terms of its function. But I have shown that the two types of explanations do not overlap to the extent that one is superfluous. To the contrary, I have suggested two accounts that the teleological explanation offers which the Formal cannot:
Difference 1: A Formal explanation can account for the function of some objects, such as a wheel or a knife, in terms of their structure. But the Formal explanation is unable to account for the earth’s function in terms of its spherical shape. This is because the earth’s function has to do with its role within a system and its relationship to other bodies; thus, the function can be accounted for only in terms of this system and these relationships. A Formal explanation cannot account for anything in terms of systems or relationships.

Difference 2: Only the Platonic teleological explanation can account for the reason why the earth was created at the particular time it was, in the particular place it was, and in the particular way it was. It can also account for the reason why earth was created at all. The Platonic teleological explanation can account for these things because it involves an intelligent agent whose intentions constitute the “reason why”.

Based on this investigation, I conclude that Plato does not conflate teleological and Formal explanations as the “formalists” of Aristotle’s dichotomy do. Moreover, the Formal explanations of the Republic do not contain a teleological component. On the contrary, Platonic teleological explanations and the Formal explanations of the Republic are distinct and independent, and each type of explanation accounts for phenomena that the other cannot.
3.2 The Form of the Good in Relation to Platonic Teleological Explanations

The Republic offers a second theory about goodness: the theory of the Form of the Good. It is plausible to think that there is some kind of connection between Form of the Good in the Republic and Platonic teleological explanations. In both the Phaedo and the Timaeus Plato seems to require that a proper teleological explanation must always be formulated in terms of what some purposive agent thinks is good, not on some detached, impersonal notion of what is actually good. Now it’s certainly true enough that both the divine craftsman of the Timaeus and the philosopher king of the Republic are such that what they believe is good is in fact good, but this is a completely separate issue from that of the adequacy of any teleological explanation that makes references to those beliefs. For such an explanation would not be any the worse if those beliefs turned out to be false. This is why in the Phaedo, Socrates can give as a part of the correct teleological explanation of his sitting in his jail cell that “Athens thought it best to condemn me” even though he is quite certain that this judgment was in fact erroneous. In view of this, given that what Santas calls the “theory of the Form of the Good” is a metaphysical theory about what makes things good – that is, genuinely good – and also an epistemological theory about how one can come to know what things are good, it seems plausible to suppose that the Form of the Good and teleological explanations are connected.

However, in this section, I show that this prima facie supposition is ungrounded: It is not plausible to conclude that the Form of the Good plays any role in underwriting the
legitimacy of teleological explanations framed exclusively in terms of what certain purposeful agents think is good.

First, I must note that my examination faces the same obstacle that any investigation regarding the Form of the Good would encounter: Plato’s own account of the Form of the Good in the Republic is notoriously obscure, and there is considerable debate among scholars as to how to interpret it. I circumvent this obstacle by adopting a strategy that allows me to demonstrate my point independently of any particular interpretation of the Form of the Good. This strategy is as follows: I attempt to defend the thesis, that the theory of the Form of the Good in the Republic contains a teleological component, by choosing interpretations of the Form of the Good that best support it. The fact that not even the most liberal interpretations lend support for the thesis demonstrates that it is not plausible.

In addition, it must be kept in mind that one advantage to the strategy I use is that it brings to the surface some additional insight that may not have been apparent otherwise. In light of this, after making my main argument, I discuss what this insight may be. More specifically, I speculate as to how Plato may intend for teleology and the theory of the Form of the Good to be related elsewhere in his dialogues.

The thesis I wish to evaluate is that the theory of the Form of the Good in the Republic has a teleological component. First, let us consider Santas’ variation of the thesis in question:

Probably a case can also be made that the theory [of the Form of the Good] is presupposed in the teleological explanation of the Phaedo (97-
99), the ‘creation’ of the physical universe in the *Timaeus* (29-33), and even the theory of love in the Symposium.¹²

Santas suggests that the theory of the Form of the Good is presupposed by teleological accounts.¹³ The following assumption complements his suggestion: “What conception of goodness did he have, which allowed him to think of the Form of the Good not only as the final cause of everything that we do…?”¹⁴

Here, Santas assumes that the Form of the Good is the ultimate *telos*, the end for the sake of which we act. Even before examining the theory of the Form of the Good in the *Republic*, we can offer a plausible interpretation of this. Platonic teleological explanations may presuppose the theory of the Form of the Good in the following way: The fundamental premise in Plato’s teleological explanations is that intelligent agents, by virtue of being intelligent, necessarily have the goal of doing what they think is best for a certain end. For example, the Divine Craftsman makes the earth spherical because he thinks it is best for the sake the function of the earth. But there is nothing in the teleological explanation itself that guarantees that the ends are *good*. Is it *good* that the earth functions well? Consider another example: An evil genius makes his planet spherical because this shape is best for the sake of two ends: the function of his planet and the function of his cosmos. But the functioning of his planet and his cosmos

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¹³ Here I must point out that my argument in the last section -- that Formal explanations are independent of teleological explanations – does not offer any insight into this question. Based on my discussion in the previous section, I would conclude that the theory of Forms need not be presupposed by the teleological account. But, as I shall explain, the Form of the Good is unlike other Forms; it is *sui generis*. Because of this, I evaluate Santas’ idea that the *theory Form of the Good* is presupposed by the teleological account independently of my discussion in the previous section.
maximize evil in the world; thus, his “ends” are evil. Here is one way to plausibly interpret the claim that the Form of the Good and teleology are connected:

Possible Interpretation: It is in virtue of some participation-relation with the Form of the Good that the ends for the sake of which an intelligent agent acts are good.

3.2.1 What is the Form of the Good?

First, I offer a minimal account of what the Form of the Good is. The Form of the Good is the centerpiece of Plato’s metaphysics – it is prior ethically, epistemologically, and ontologically to everything else in Plato’s universe. Interpretations of the theory of the Form of the Good vary widely; my intention is that the conclusions I draw here do not depend on any particular interpretation of the Form of the Good. With this in mind, I avoid making any unwarranted assumptions by adopting the most general interpretations possible. Here I shall refer to Santas’ explanation of what the Form of the Good is. Each Form’s “proper attributes” are those attributes it has in virtue of being the particular Form that it is. For example, the Form Circle is circular and the Form Beauty is beautiful. A Form’s “ideal attributes” are those attributes a Form has in virtue of being a Form, rather than some other type of object. Such attributes are perfection, eternality and intelligibility. According to the principle of “one over many”, given that all Forms share these ideal attributes, there must be a Form in virtue of which they have these attributes.

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15 Santas (1999).
This Form is the Form of the Good. I imagine the Form of the Good as the tip of an umbrella and the Forms as the ribs that extend from the tip.

**Figure 5: The Umbrella of Forms**

Is there any connection to teleology so far? Teleology has to do with an agent acting according to what he thinks is best for the sake of some end. This account of the Form of the Good involves Forms -- not agents, actions, or ends. So far, there is no immediately obvious connection.

Since teleology involves sensible things, we may look for a connection by examining the way the theory of the Form of the Good may relate to the sensible world. Santas draws the plausible conclusion that the theory of the Form of the Good accounts for the goodness of sensible objects in the following way:

G1. A sensible thing $f$ participates in the Form F.
G2. The Form F participates in the Form of the Good.
G3. By virtue of G2, the Form F is a Form, and the Form F is good.
G4. By virtue of $f$’s participation in a Form which participates in the Form of the Good, $f$ participates in the Form of the Good “indirectly”.

... and all other Forms
G5. The good a sensible object has in virtue of its indirect participation in the Form of the Good is “indirect goodness”. ¹⁶

We do not know yet what “indirect goodness” is, and we cannot gain any insight on what “indirect goodness” is from the text. Instead, I construct a hypothetical Form-of-the-Good explanation of a phenomenon that is also explained teleologically in order to compare what each explanation may tell us about the goodness of a sensible object. This

¹⁶ Santas (1999) says, “The goodness of sensibles is attributive and involves participation in at least two Forms, one of which is the Form of the Good” (p.250, n6).
sheds light on what it may mean for a sensible object to be “indirectly good”. The point of this particular part of the investigation is as follows: Recall that the larger goal is to evaluate Santas’ claim that Platonic teleology presupposes the theory of the Form of the Good. I suggested a way to plausibly interpret this claim: Perhaps the Form of the Good is somehow responsible for the goodness of an agent’s end. How might the Form of the Good be responsible for an end? If the theory of the Form of the Good in the *Republic* accounts for “indirect goodness”, which is the goodness of sensible things, then perhaps it can account for goodness of some of the sensible things mentioned in a teleological explanation – such as the agent, the state of affairs, or the end achieved.

As I’ve mentioned, my intention is that my conclusions here do not depend on any particular interpretation of the theory of the Form of the Good. Using the approach that I do here, I am able to limit myself to making only minimal assumptions about what Form-of-the-Good explanations are like.

### 3.2.2 A Teleological Explanation of Why Humans Have Eyes

In my discussion of Platonic teleological explanations in the previous section, I summarize them as follows:

**PTE:** The state of affairs, ‘*x is F*’ obtains because an intelligent agent brought it about. He brought it about because he thought that ‘*x is F*’ is best; where “best” is understood as that which is best for *x*, as well as that which is best for the larger system. In the case of functional objects, “best” means what is best for the object given its function.
Plato’s teleological account of why humans have eyes (*Timaeus* 46e8-47a1) answers the following questions:

**T-eyes1:** “Why and how did humans come to have eyes?” One focus of the *Timaeus* is to explain the creation of the cosmos in terms of the craftsmanship of the Divine Craftsman. Plato answers *how* things come to be by describing the Divine Craftsman’s construction. The reason *why* humans came to have eyes is that the Divine Craftsman thinks it is best that they have eyes. The reason why humans came to have eyes when they did, where they did, and in the way that they did is because the Divine Craftsman thought it was best.

**T-eyes2:** Plato answers the question “Why do humans have *eyes* rather than some other instrument?” in an advanced discussion of optics which explains why eyes are the *best* instruments for seeing.

**T-eyes3:** Then Plato explains “their highest function for our benefit for the sake of which the god gave them to us”. In other words, why is it best *for humans* that humans have eyes? He offers two reasons: First, having eyes allows humans to view the movements of the celestial bodies, which in turn allows humans to grasp the concept of time.\(^\text{17}\) Secondly, having eyes allows humans to observe the heavens, and from viewing the harmony of

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\(^{17}\)“The sight of day and night, of months and the revolving years, of equinox and solstice, has caused the invention of number and bestowed on us the notion of time and the study of the nature of the world; whence we have derived all philosophy, than which no greater boon has ever come or shall come to mortal man as a gift from heaven” (*Timaeus*, 47a4- 47b1 Cornford translation).
the heavens humans will learn how to order their own souls in a similarly harmonious way. The suggestion is that viewing the heavens will ultimately help man become more virtuous. We may summarize this as follows: the Divine Craftsman thinks that the state of affairs ‘humans have eyes’ is best for humans because having eyes enables them to view the heavens, which enables them to grasp the notion of time and become more virtuous.18

T-eyes4: Plato does not state explicitly a reason why the state of affairs ‘humans have eyes’ is best for a wider system, but it is reasonable to assume that a wider system such as society benefits from having more virtuous humans.

This teleological account in particular lends insight to our larger investigation because of the fact that it identifies the specific circumstance which demonstrates why the state of affairs ‘humans have eyes’ is best. This is significant because now we may ask, what about a situation in which a human is not gazing at the Heavens, but rather looking at something disorderly and evil instead? In the Republic, Plato censors certain art and music because he believes that observation of something disordered, such as a painting portraying disharmony, will twist one’s soul into a similarly disordered state.19

In other words, when a human is viewing a disordered thing, his eyes are not

18 It is interesting to note here that the Divine Craftsman decides what function the eyes should have based on the needs of the system. Recall that in the first section of this chapter, I suggested that the function of the earth is determined by the Divine Craftsman, not the Form. This is because the earth’s function has to do with its role within a system and its relationship to other bodies; thus, the function can be accounted for only in terms of this system and these relationships. Forms cannot account for systems or relationships among objects.

19 This is suggested by Plato’s censorship of art and music in the Republic.
contribute to good ends. This is unproblematic for the teleological explanation itself -
the fact that eyes do not always contribute to good ends does not contradict the

teleological claim that the state of affairs ‘humans have eyes’ is best for some end. The
teleological explanation does not purport to account for an unconditionally good end, but
rather for what is best for some end, regardless of its goodness. On the other hand, the
teleological explanation does tell us something about goodness: It tells us that eyes are
conditionally good.

3.2.3 Form-of-the-Good Explanation of Eyes

What would an explanation invoking the Form of the Good tell us about the
goodness of eyes? I am examining a Form-of-the-Good account of one phenomenon (in
this case, eyes) that is also explained teleologically in order to bring to the surface the
difference between the two types of explanations. In this case, the project of contrasting
the two lends insight into how each type of explanation may account for goodness. Can a
Form-of-the-Good explanation account for the goodness of one of the components of a
teleological explanation (such as the agent, the sensible objects in question, or the end
achieved)? This may offer a plausible interpretation of what Santas means when he says

that the theory of the Form of the Good is presupposed by teleological explanations.

A Form-of-the-Good account of eyes would be as follows:

G-eyes1: eyes participate in the Form Eye
G-eyes2: The Form Eye participates in the Form of the Good
G-eyes3: eyes indirectly participate in the Form of the Good
What does it mean for eyes to be “indirectly good”? As I explained, it is not always true that eyes contribute to good ends -- when eyes view disorderly things, eyes are not contributing to the greater good. This means that eyes are not always “good”. Can a Form-of-the-Good explanation account for this discrepancy?

G-eyes1: eyes participate in the Form Eye

G-eyes2: The Form Eye participates in the Form of the Good

G-eyes3: When eyes view orderly things they indirectly participate in the Form of the Good and so they are “good”. When eyes view disorderly things they do not indirectly participate in the Form of the Good, and so they are not “good”.

The problem with this account is that it is not a Formal explanation. While it may be true that when eyes view disorderly things, they do not indirectly participate in the Form of the Good, this condition cannot be accounted for by a Formal explanation. As I explained earlier, a Formal explanation tells us some fact about an object in virtue of its participation in a Form, but it cannot tell us anything about why or how the object’s participation in the Form may change. Moreover, Formal explanations cannot account
for space or time. Since conditionality has space-time references, the Form-of-the-Good explanations cannot account for conditional goodness.\(^{20}\)

### 3.2.4 What is Indirect Goodness?

As part of the process of gaining insight into what “indirect goodness” is, I have shown what “indirect goodness” is not: It is not conditional goodness because a Form-of-the-Good explanation cannot account for such goodness. It is also the case that “indirect goodness” is not what I call “good\(_F\)”. Recall from the previous section that the Theory of Forms offers the following two accounts of goodness:

**Functional Account:** Any functional object \(x\) is good\(_F\) insofar as it functions well, and it functions well in virtue of the degree to which it participates in the Form corresponding to the kind to which it belongs. For example, a knife is a good\(_F\) knife because it functions well, and it functions well because it participates in the Form Knife to a great degree.

This does not say that the knife is conditionally good, because it does not refer to an ends to which the knife contributes. It also does not tell us that the knife is unconditionally good. Rather, it says that a knife is a good\(_F\) knife – it is a good instance of its kind.

**Resemblance Account:** \(x\) is good\(_F\) insofar as it resembles the Form corresponding to the kind to which it belongs. This interpretation is based on the

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\(^{20}\) There is one functional thing that always participates in the Form of the Good: Human reason always participates in the Form of the Good. This is the basis for Socrates’ famous notion that virtue equals knowledge: When a human is behaving evilly, he is not exercising his reason. Thus, when reason is functioning *at all*, it is contributing to the good. But the same is not true of a knife – a knife, while functioning perfectly well, is contributing to evil when it is used as a murder weapon. Unlike human reason, the knife’s function is not necessarily tied to goodness.
principle of Self Predication. For example, the Form Circle is itself a circle. A circle is good\(_F\) if it participates in the Form Circle to the great degree and closely resembles the Form Circle.

This account also does not tell us whether the circle is conditionally or unconditionally good.

It seems to be the case that there are three different kinds of goodness:

1. good\(_C\)-ness: This is conditional goodness, which we can derive from teleological explanations. A thing or state of affairs is good\(_C\) insofar as it contributes to a particular end.

2. good\(_F\) -ness: An object, \(x\), is good\(_F\) insofar as it participates in the Form corresponding to the kind to which it belongs.

3. “indirect goodness”: This is the goodness an object has in virtue of its indirect participation in the Form of the Good. Here, I offer a suggestion: perhaps “indirect goodness” has to do with intrinsic goodness.

Could “indirect goodness” be a kind of intrinsic goodness? Let us refer back to the hypothetical Form-of-the-Good account of eyes:

G-eyes1: eyes participate in the Form Eye

G-eyes2: The Form Eye participates in the Form of the Good

G-eyes3: eyes participate in the Form of the Good indirectly

G-eyes4: eyes are “indirectly good”
What does it mean for eyes to be “indirectly good”? Eyes are good if eyes insofar as they perform their function well. Eyes are good insofar as they contribute to a good end. But eyes are not intrinsically good, because they are not always good: when they view disorderly things they are not good. Given this information, it is unlikely to think that eyes are intrinsically good in virtue of their indirect participation in the Form of the Good.

Plato himself recognizes that the particular case of sensible objects is problematic. Plato discusses this problem specifically in the *Parmenides*. When Parmenides asks if there is a Form for Man, Plato says he is “often undecided… as to whether I ought to include them or not.” Parmenides then asks if there is a Form for mud, dirt, and hair. Plato replies that there are no Forms for sensible things, but then admits that this results in a contradiction in his theory: “I sometimes get disturbed and begin to think that there is nothing without a Form; but then again, when I have taken up this position, I run away, because I am afraid that I may fall into a bottomless pit of nonsense, and perish” (130d Gill & Ryan translation). It is plausible to think that one of the many reasons Plato is unsure as to whether there are Forms for these objects is that it is difficult to see how objects such as mud, dirt, and hair are intrinsically good.

3.2.5 Taking Stock

Based on our investigation so far, it is unlikely that there is a plausible interpretation of how the theory of the Form of the Good accounts for goodness of objects. It cannot account for the conditional goodness of objects, since conditions
involve space/time references, and no Formal explanation can account for these. It does not account for \( \text{good}_F \) –ness, because this refers to the instrumental goodness an object has in virtue of the Form in which it participates. It is also unlikely that the theory of the Form of the Good accounts for the *intrinsic* goodness of sensible objects.

Recall the suggested interpretation I offered in the beginning of this section: It is in virtue of some participation-relation with the Form of the Good that the *ends* for the sake of which an intelligent agent acts are *good*. If the “ends” are sensible objects, then it is unlikely that the theory of the Form of the Good can account for their goodness, since it seems to be the case that there is no plausible interpretation of how the theory of the Form of the Good accounts for the goodness of sensible objects. What if the ends are non-sensible things, such as justice or virtue?

According to the Platonic teleological explanation of why humans have eyes, eyes are good when they contribute to a good end. This end is one in which humans become more virtuous because of their observation of the heavens. Perhaps we may describe this end as “human virtue”. In other words, the Divine Craftsman gave humans eyes for the sake of human virtue.

In what follows, I consider the possibility that teleological explanations presuppose the theory of the Form of the Good because it is in virtue of some participation relation with the Form of the Good that the ends are intrinsically good. First, I shall evaluate whether it is plausible to think that Plato needs a theory of intrinsic goodness. Then, I offer a suggestion on how the theory of the Form of the Good may establish intrinsic goodness.
3.2.6 Textual Support

Here I consider whether it is reasonable to think that Plato intends to account for intrinsic goodness at all. I begin with the Gorgias because Plato’s discussion about the “goodness” of rulers in the Gorgias anticipates his more developed discussion of the same issue in the Republic. In the Gorgias, Plato considers whether ship pilots are “good” (511b1-512d1). Given that the pilot’s job is to safely transport passengers from one place to another, we may conclude that a “goodF” pilot is one who ensures that this goal is accomplished by saving his passengers from drowning. In general, Plato determines what makes any kind of craftsman – such as horse-breeder, a ship pilot, or a doctor, etc – a goodF craftsman in terms of the function his craft demands. This is a variation of goodF-ness – in this case, the goodness a craftsman has in virtue of the kind of craftsman he is.

In the Gorgias, Plato shows that an account of a craftsman’s goodF-ness is not enough. For example, a goodF pilot would save his passengers from drowning. However, it is not the case that saving a man from drowning is always good – Socrates points out that some passengers may have been better off had the ship pilot let them drown. He says: “[the ship pilot] cannot tell which of his fellow-passengers he has benefited, and which of them he has injured in not allowing them to be drowned” (512a9-b1).

The pilot knows what is goodF; in other words, given what a pilot’s specific function is, he knows what makes a pilot a goodF pilot. But he does not know how to guide his actions according to some greater notion of “good”.
This becomes relevant in Plato’s discussion of justice in Book I of the Republic. It is not enough for the ruler of city to know only what is good— in other words, “good” according to the function of a ruler or the function of a city. Unlike the ship-pilot, a ruler must have some greater notion of “good” so that he can guide his actions for the sake of good ends. What makes an end a “good” end? In Book 2, Plato considers three different kinds of goodness, the first of which is as follows: “Tell me, do you think there is a sort of good we welcome, not because we desire its consequences, but because we welcome it for its own sake? (357b5-6 Reeve translation). The character Socrates replies that justice is this kind of good – it is good for its own sake, regardless of its consequences. In other words, justice is intrinsically good. Plato ultimately claims that the ideal ruler should act for the sake of justice, which is an intrinsically good end.

3.2.7 Can the Form-of-the-Good Explanation Account for Intrinsic Goodness?

It is already clear that the theory of the Form of the Good accounts for the goodness of Forms. For example, the Form Justice is good in virtue of its participation in the Form of the Good. But Plato needs to show that justice in the sensible world is intrinsically good. Here is a suggestion of how a Form-of-the-Good explanation may account for the intrinsic worth of the sensible manifestation of justice.

G-city1: A city is just because it participates in the Form Justice

G-city2: The Form Justice participates in the Form of the Good.

G-city3: The city indirectly participates in the Form of the Good.

G-city4: The city is “indirectly good”.

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We have excluded the possibility that “indirect goodness” is good$_F$ or good$_C$. Here are three interpretations of the conclusion that the city is “indirectly good”:

1. “The city is intrinsically good.” This possibility is unlikely: There is no such thing as an intrinsically good city, because a city cannot always be good.

2. “The fact that the city is just is intrinsically good.” At first blush, this conclusion is unlikely, because it is odd to think that a Formal account can be used to account for the intrinsic worth of a state of affairs. I will shelve this possibility for later.

3. “The city is indirectly good because it has a feature, namely, *justice* that is intrinsically good.” This is a plausible conclusion. Regardless of what happens to the city, it is still the case that justice – as it is manifested in the sensible world - is intrinsically good. Though it may seem odd that this explanation accounts for the justice “in” the city, this is unproblematic because it is consistent Plato’s account of Forms as “in” the participating objects.

The notion that Form-of-the-Good explanations account for the goodness of objects in terms of the intrinsic worth of their features, such as beauty, justice, courage, etc., supports the reason why Plato needs the theory of the Form of the Good: According to the Theory of Forms by *itself*, $x$ is just in virtue of $x$’s participation in the Form Justice. According to one part of the theory of the Form of the Good, it is in virtue of participating in the Form of the Good that the *Form Justice* is good. But neither explanation tells us that justice in the sensible world is intrinsically good.
3.2.8 How Might a Teleological Explanation Presuppose a Theory of the Form-of-the-Good?

Consider this hypothetical teleological explanation: A ruler enacts certain laws because he thinks it is best. It is “best” for his sake, given his function of ruling the city, and it is best for the sake of the city. What if the city is evil, and these laws are only “best” because they help to increase the city’s evilness? We may revise the explanation as follows: A ruler enacts certain laws because he thinks it is best for the sake of the city. The city is just because it participates in the Form Justice. By virtue of the Form Justice’s participation in the Form of the Good, the city is indirectly good. This means that the city has an intrinsically good feature; namely, justice. This supports the teleological explanation in the following way: The ruler acts for the sake of an end, which is the justice of the city. This end is intrinsically good. We know this because the Form-of-the-Good explanation accounts for the intrinsic worth of justice in cities.

3.2.9 A Possible Conclusion

The teleological explanation helps us learn how to identify good things in the world. For example, the teleological account of the eyes tells us the particular conditions in which eyes contribute to good ends; namely, when they are viewing the heavens. It also tells us what the “good end” is – the proper ordering of a human’s soul. For these reasons, it seems to be the case that teleological explanations are epistemological accounts of goodness – they tell us how we learn what is good and what is not. Form-of-the-Good explanations seem to serve a different purpose: they establish what is good in
terms of Plato’s metaphysics. This may lead one to believe that Plato intended for
teleological explanations to be the epistemological counterpart to what Form-of-the-Good
explanations achieve metaphysically. In other words, The Form-of-the-Good explanation
accounts for what is good. The purpose of a teleological explanation is to explain how
we may we learn about what is good; in other words, it gives us access to what has
already been established metaphysically. The distinction between Form-of-the-Good and
teleological explanations lines up with the distinction between metaphysics and
epistemology. But this claim also suggests a further conclusion: the teleological
explanation is strictly epistemological, and does not account for anything metaphysically,
while the Form-of-the-Good explanation is strictly metaphysical, and has nothing to offer
in the way of epistemology.

These conclusions may not be accurate. A teleological explanation is not merely
part of an epistemological theory of goodness, it can also be understood as giving us a
metaphysical theory of goodness, in particular, conditional goodness. A teleological
explanation states that x is good on the condition that x contributes to good ends. This is
not just an epistemological claim; rather, it says something about the goodness of x;
namely that x is good conditionally. Such a claim is true regardless of whether or not we
come to learn this fact. The fact that the teleological explanation gives additional
information, such as how x came to be, why x has certain features, and how we may
know whether x is good, does not preclude the notion that the teleological explanation is
making a metaphysical claim about the goodness of sensible objects.
Likewise, the Form-of-the-Good explanation is not merely a metaphysical account of goodness. This is made clear by the explanation that the Philosopher King touches the Form of the Good so that he may learn how to identify good things in the world, and how to maximize goodness. Clearly, a Form-of-the-Good explanation has epistemic value for the Philosopher King. But it also may have epistemic value for us: Like other Formal explanations, the Form-of-the-Good explanation tells us what is true about $x$. From a Form-of-the-Good explanation, we learn that the virtues are intrinsically good. We may not understand how this goodness manifests itself in the sensible world, or how to identify these good things – that is known only to the Philosopher King. But the Form-of-the-Good explanation is not only an epistemological account of how the Philosopher King comes to know goodness, it also has epistemic value for us: it tells us what is intrinsically good in the world.
4. The Divine Craftsman of the *Timaeus*

Recall that my investigation in this dissertation is motivated by the question of whether and how Plato distinguishes among the three explanatory modes: Form, matter, and *telos*. Though my focus is on Plato’s theory of explanation specifically, I use Aristotle’s criticism of his predecessors’ theories of explanation as the touchstone for my investigation. I identified in Chapter 1 certain passages in Aristotle in which he criticizes his predecessors for failing to adequately account for Form, matter, and *telos* in their explanations. Based on these passages, I developed two interpretive theses of Aristotle’s criticism of Platonic explanation (Chapter 1, Introduction). These theses then served as springboards for my examination of the theory of explanation in Plato’s *Phaedo* (Chapter 2), and my investigation of this theory in the context of the more developed Theory of Forms of the *Republic* (Chapter 3). Recall that the two guiding theses are as follows:

Criticism 1. Plato’s account in the *Phaedo* commits him to the absurd view that Forms function as efficient causes.

Criticism 2. Plato does not adequately take into account material considerations in his theory of explanation.

As my discussions throughout this dissertation have evidenced, my investigation is not intended primarily to defend Plato against Aristotle’s criticism; rather, I use Aristotle’s criticism as a point of departure for a more general examination of Plato’s theory of explanation.
In Chapter 2 I examined Plato’s theory of explanation in the *Phaedo*. Criticism 2 suggests that Plato does not adequately account for material considerations, and, as I explained in that chapter, a *prima facie* reading of the *Phaedo* may appear to support this view. I demonstrated that this *prima facie* reading is misguided: there is no warrant for drawing the conclusion that Plato rejects material explanations. To the contrary, I argued that Plato’s “clever *aitia*” is a distinctive type of explanation that incorporates both Form and matter as explanatory modes.

Criticism 1 suggests that Socrates casts Forms in the role of efficient causes. Based on my examination of the *Phaedo*, I concluded that Plato does not invoke Forms as efficient causes. His “simple *aitia*” accounts for an object’s property in terms of its participation in a Form, and it does not involve any notion of efficient causation. I explained that Plato accounts for efficient causation in his Platonic Teleological Explanations. In contrast to Aristotelian teleological explanations, Platonic Teleological Explanations involve an agent who is the efficient causation of the state of affairs he judges to best.

In Chapter 3, I refined this interpretation of Platonic Teleological Explanations by comparing them to the more developed Formal explanations of the *Republic*. My examination demonstrated that the two types of explanations cannot be conflated: Formal explanations are clearly distinct from Platonic Teleological Explanations. I also argued that, while the Form of the Good is *sui generis*, it is implausible to interpret it as the explanatory mode of Platonic Teleological Explanations.
In this chapter, I revisit Criticism 2, according to which Plato does not adequately account for material considerations. As I have shown, the clever aitia incorporates matter as an explanatory mode only in conjunction with the Formal mode of explanation. In this chapter, I will show that Plato also offers explanations invoking matter as the only explanatory mode. First, I demonstrate that it is implausible to interpret Plato’s cosmology in the Timaeus as based exclusively on teleological and Formal causation because such an interpretation leaves an explanatory gap. Moreover, I claim that there is textual evidence that Plato offers non-teleological, non-Formal explanations (those attributed to “Necessity”) that account for this gap. Finally, I propose that these non-teleological, non-Formal accounts may be plausibly interpreted as material accounts – the type of account Aristotle claims is missing in Plato’s theory of explanation.

I begin with an overview of the Timaeus. According to this account, the cosmos is the product of the work of a Divine Craftsman (also represented by “Reason”) an agent who constructs the cosmos with the goal of making everything according to what he thinks is best. My interpretation of Platonic Teleological Explanations is consistent with the following features of the Divine Craftsman, qua teleological agent: Because the Divine Craftsman is divine, he is supremely intelligent and good absolutely, and thus it follows that whatever he thinks is best, actually is the best. Moreover, what he thinks is best is order (kosmos) as opposed to disorder, and, finally, he is the efficient cause of this order.

The Divine Craftsman is not the only force operating in the cosmos -- there is also a non-teleological force, personified as Necessity. Interpretations of the relationship
between the Divine Craftsman and Necessity vary widely: Plato says that the cosmos is “a mixed result of the combination of Necessity and Reason” (48a1, Cornford translation), which suggests that the two forces make equal contributions to the final product, the cosmos. But he goes on to say that Reason “overruled” Necessity by “persuading” her (48a7), which suggests that Reason completely dominates Necessity.

Whether or not the Divine Craftsman dominates Necessity has crucial implications for Plato’s theory of explanation. If the Divine Craftsman (the teleological agent) has complete control over Necessity (the non-teleological force), then it follows that the teleological agent is the one ultimately responsible for all phenomena in the cosmos. If the teleological agent is ultimately responsible for all phenomena, then it follows that all explanations of these phenomena are reducible to teleological explanations. An illustration of such a reduction is as follows: suppose one asks “Why is fire hot?” According to a material explanation, (perhaps) fire is hot because this is a brute fact of the nature of fire, *qua* material. But the material explanation can be reduced to a teleological explanation: the reason fire is hot is because the Divine Craftsman thought it best for fire to be this way, and so he has created fire as such. If the teleological agent is ultimately responsible for all phenomena, then all other explanations are spurious. This represents what I call the Exclusively Teleological View. On this view, Plato has a limited theory of explanation in which the teleological explanation is the *only* irreducible explanation. Forms and matter have no genuinely explanatory role.

I argue that this interpretation of the *Timaeus* leaves an explanatory gap, because certain phenomena described in the *Timaeus* cannot be explained teleologically. As an
alternative I suggest an interpretation of the *Timaeus* that avoids this explanatory gap and
offers a more intuitive reading of the text. On my interpretation, we can plausibly
interpret the *Timaeus* as offering three types of explanations: teleological, Formal, and
material -- none of which is reducible to the other. The upshot of my interpretation is that
it shows that Plato adequately accounts for material considerations in his theory of
explanation, contrary to what Aristotle’s criticism suggests.

If, on my view, the *Timaeus* is *not* exclusively teleological, then there must be a
non-teleological cause, and this non-teleological cause must be independent from the
teleological cause and thus irreducible to it. Thus, my first task (Section 3.1) is to
demonstrate that Necessity may be plausibly interpreted as an independent causal force,
in which case, theoretically, it is capable of constraining the Divine Craftsman. This lays
the foundation for my argument that Necessity actually is the cause of constraints on the
Divine Craftsman. More specifically, Necessity is a material/efficient cause of these
constraints.

4.1 Against the Exclusively Teleological View

According to several interpretations of Necessity, Necessity does not constitute a
cause at all. These interpretations entail what I shall call the Exclusively Teleological
(ET) view, since, on these interpretations, Necessity is not the kind of thing that could
compete with the teleological cause. I consider two interpretations of Necessity that
entail the ET view: On one interpretation, Necessity represents chance and thus,
Necessity is not a cause. According to the second interpretation I consider Necessity, is
merely a metaphorical device that does not represent an actual cause in the cosmos. I show that the text not only fails to support these interpretations of Necessity, but that, more strongly, the text demonstrates that these interpretations leave an explanatory gap. The text clearly requires a non-teleological cause to account for this gap.

4.1.1 First Exclusively Teleological View: Necessity Represents Chance

According to many traditional interpretations, the name ‘Necessity’ (anagkê) is a misnomer. The name ‘Necessity’ suggests that Necessity is a regular, deterministic, or unchangeable force. But Plato’s account of Necessity appears to suggest that it is the opposite: it is akin to chance. This has important implications for our interpretation of the theory of explanation suggested by the Timaeus. If Necessity is chance, then it follows by definition that Necessity is not a cause. As I explained previously, if Necessity is not a cause, then the only cause of phenomena in the cosmos is the teleological agent, in which case we must adopt the ET view.

Grote’s interpretation of Plato’s Necessity represents the traditional view:

This word ‘necessity’ is usually understood as denoting what is fixed, permanent, unalterable, knowable beforehand. In the Platonic Timaeus it means the very reverse: the indeterminate, the inconstant, the anomalous, that which can be neither understood nor predicted. It is Force, Movement, or Chance, with the negative attribute of not being regular, or intelligible, or determined by any knowable antecedent or condition.¹

At first blush, the text seems to support Grote’s suggestion that Necessity is chance. Plato refers to Necessity as the “wandering cause”, and describes it as “destitute of

¹ Grote, G. 1865, Plato and the Other Companions of Sokrates. (London: John Murray, 1865).
reason”. 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).

But I claim that these descriptions of Necessity in the *Timaeus* do not support Grote’s interpretation at all. Necessity is said to produce “sundry effects at random and without order” (46e3-6). Notice that this only states that Necessity’s effects are disordered. It does not follow from fact that its effects are disordered that Necessity is incapable of necessitating an effect. In other words, Necessity may still be a deterministic cause – a cause that necessitates certain effects -- even though the effects themselves do not exhibit any order. Here, I borrow an analogy from Johansen: the pile of laundry you take out of the washing machine has no particular order to it; nevertheless, each article of clothing got to where it is as a result of a regular physical process. The fact that Necessity produces “sundry effects at random and without order” does not imply that Necessity is chance, and it does not preclude the possibility that Necessity is a deterministic cause. The fact that Necessity is “destitute of reason” and “incapable of any plan or intelligence for any purpose” (46d3) does not imply chance-like behavior either. Necessity’s lack of intelligence and purpose indicates that Necessity is not teleological. Of course, it does not follow from the fact that Necessity is non-teleological

that Necessity is chance-like. A non-teleological cause could be deterministic, rather than chance-like.

It may seem more difficult to reconcile Necessity’s description as “the wandering cause” with the notion that Necessity is deterministic, because ‘wandering’ suggests chance-like, unpredictable behavior. But the Greek verb for ‘wander’ need not commit us to the same implications of the English word. The Greek word is ‘plánomai’, and, as Johansen has pointed out, this word only suggests aimlessness. Aimlessness is the lack of a purpose or goal, not necessarily the lack of determinacy. For example, I may aimlessly toss something out of my car window; nevertheless, my tossing is a deterministic cause that necessitates a certain effect. Necessity is aimless by virtue of lacking a particular goal; in other words, it is not teleological. But again, this does not mean that Necessity is chance-like.

The suggestion that Necessity is not chance-like must be reconciled with other accounts of Necessity in Plato’s dialogues, in which necessity and chance seem to be synonymous. For example, in the Laws, the Athenian describes a view according to which the heavenly bodies move “by chance, of necessity” (kata tuken ex anagkês) (891c-892c Saunders translation). Plato criticizes cosmologies according to which nature (phusis) is the result of necessity (anagkê) and chance (tuke), and favors instead cosmologies according to which the world is the result of intelligent design. In the Philebus, the characters Socrates and Protarchus conclude that we should condemn theories according to which the cosmos is “at the disposal of a force that works without plan, at random, and just as it may chance” (28d Frede translation). In light of the
accounts in these texts, Grote’s suggestion that Necessity is chance-like may seem convincing.

In these dialogues, Plato contrasts an intelligent cause to both necessity and chance collectively, which suggests that necessity and chance are tantamount. But the fact that Plato groups the two together does not warrant the conclusion that Plato conflates necessity and chance. Given that the topic of discussion in these passages is cosmology, it is more likely the case that Plato is simply grouping necessity and chance together because they share something in common: Neither chance nor necessity is capable of offering a rationale for a state of affairs. Chance, by definition, is not a cause, and necessity, by definition, necessitates effects in absence of a rationale. It is likely that Plato groups necessity and chance together while still recognizing the fact that they are distinct: necessity represents a deterministic causal link, while chance does not.

Aristotle, like Plato, criticizes cosmologies according to which the cosmos is the result of chance and necessity because such cosmologies fail to account for goodness. But Aristotle associates chance with necessity only insofar as they are both opposites to intelligence. In his account of the rainfall, he clearly distinguishes between the concepts of chance (which he calls coincidence) and necessity:

Zeus’ rain does not fall in order to make the grain grow, but of necessity. For it is necessary that what has been drawn up is cooled, and that what has been cooled and become water comes down... Similarly, if someone’s grain is spoiled on the threshing floor, it does not rain in order to spoil the grain, and the spoilage is coincidental (Physics II 8 Wicksteed and Cornford translation).

Rain falls because of necessity, and it may cause something by coincidence, and in both cases, rain is not an intelligent cause. Rain is indifferent as to whether it helps the grain
grow or ruins the grain on the threshing floor. But Aristotle is not suggesting here that rain’s non-teleological behavior implies that it is chance-like. Rather, rain is a non-teleological result of necessity. Here, necessity is a causally determined process: as Aristotle describes, the conditions in the atmosphere are such that a certain amount of rain falls “of necessity”. It is also due to necessity that a certain amount of rain will ruin crops. A deterministic explanation may account for why the man put his grain on the threshing floor on that particular day. What is coincidental or “by chance” is the fact that it rained on the same day that the man brought his grain to the threshing floor. In other words, “necessity”, according to Aristotle, consists of causally determinate processes, such as the physical process resulting in rain. It is by virtue of “coincidence” or “chance” that a certain causally determined event happens at the same time as some other causally determined event. According to Aristotle, nature may be responsible for both necessity and chance, but necessity and chance are entirely distinct: necessity represents a deterministic cause, while chance is no cause at all.

The passage in the *Phaedo* that I discussed in Chapter 2 offers evidence that Plato recognizes that non-teleological processes need not be chance-like – they may represent deterministic causal processes. In this passage, Socrates rejects a mechanistic account of his bones and sinews as the reason why he is in jail, because bones and sinews themselves cannot offer a rationale for the state of affairs (99a-b). But in this passage, he does describe his seated position in terms of the physical properties of bones and sinews and the mechanics of their movement. Here, he refers to regular processes that are non-teleological, and he does not attribute them to chance. Moreover, he properly references
a type of necessity – he says that his bones and sinews are “that without which the cause would not be able to act as a cause” (99a); in other words, the fact that Socrates has bones and sinews is a necessary condition for his sitting in jail.\(^3\) According to the evidence in the *Phaedo* that Plato conceives of non-teleological processes that are causally deterministic, and according to his descriptions of Necessity in the *Timaeus*, there is no warrant for the view that Necessity is meant to represent chance.

### 4.1.2 Second Exclusively Teleological view: Necessity is Metaphorical

The “wandering” aspect of Necessity need not be interpreted chance in order to entail an ET view. According to Taylor,\(^4\) the fact that Necessity is described as “wandering” is an indication that Plato did not intend for Necessity to be taken literally. On his view Plato does not mean to suggest that Necessity actually functions in the cosmos at all; rather Necessity merely represents the makeshift explanation *humans* offer when we are *ignorant* of the teleological explanation of the phenomenon. Taylor explains this as follows:

> If we could ever have complete knowledge, we should find that *anagkê* [Necessity] has vanished from our accounts of the world. … This last consideration should create no difficulty except for persons who are dull enough to take the personification of *anagkê* [Necessity] literally.\(^5\)

If we could have complete knowledge of the world, we would understand the cosmos as the product of exclusively teleological causation. It may appear to be the case that certain

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\(^3\) Later in this section, I shall explain the difference between the “necessary conditions” of the *Phaedo* and Necessity in the *Timaeus*.


\(^5\) Taylor (1928/1987, p.301).
physical processes cannot be plausibly attributed to a teleological cause. But according to Taylor’s view, that these phenomena appear to lack a teleological cause to us is merely an indication of a gap in human knowledge, it is not an indication of what is actually the case. Humans attribute events to Necessity only when they are ignorant of the teleological reason.

The description of Necessity as “persuaded” by Reason (the teleological cause) is also taken as evidence for the ET view. Most famously, Archer-Hind interprets the fact that Reason must “overrule” and “persuade” Necessity as indicating that Necessity is a mode of the operation of Reason. Archer-Hind equates the World-Soul with the Divine Craftsman and the Form of the Good as one being, even though there is no textual evidence for this. Perhaps this view is motivated by Archer-Hind’s desire for the Timaeus to conform to Judeo-Christian theories of cosmology in which there is one omnipotent creator-god.

I cannot offer any objection to interpretations such as Taylor and Archer-Hind’s, because such interpretations are based on mere speculation regarding what Plato may have in mind, rather than on an objective reading of the text. In this way, they resist any further discussion: mere speculations are not subject to debate. Nonetheless, these views are not to be ignored, because they strongly influence recent “metaphorical” readings of

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the *Timaeus*, such as Lennox’s⁷. Lennox’s interpretation, unlike many metaphorical interpretations, offers legitimate textual evidence that deserves to serious consideration.

On his interpretation, Plato recommends that the best way for us to make sense of the world is to imagine that there are two causal forces at work, Necessity and the teleological agent. But we imagine this for heuristic purposes only; what is actually the case is that there is only one cause: the teleological cause. He refers to the following passages:

…he [the Divine Craftsman] made use of causes of this sort as subservient, while he himself contrived the good in all things that come to be. *We* must accordingly distinguish two kinds of causal accounts, the necessary and the divine (68e4-7, italics mine).

*We* must speak of both kinds of causes but separate those which, with intelligence, are craftsmen of fine and good things, from those which in the absence of foresight, produce their sundry effects at random and without order (46e3-6, emphasis mine).

These passages suggest that *we* distinguish between the two causes. Here, Plato makes no indication that he is describing the way the world actually is; in other words, Plato does not say here that these two causes *actually* exist in the cosmos. Lennox concludes from this as follows:

These passages do not picture a layer of the operations of the world where necessity is unconstrained, nor does it distinguish, as Prof. Vlastos suggests, between triumphs of ‘pure teleology’ and compromises between teleology and necessity. Precisely, it characterizes a world which, at every level of structure, is the product of necessary physical interactions ordered and coordinated for the sake of some good.⁸

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Lennox’s view is similar to other “metaphorical” interpretations because it is immune to refutation: if there is anything in the text that does not support Lennox’s view, he can write it off as one of Plato’s metaphors. However, I shall give Lennox’s view due consideration because it is buttressed by textual support.

The textual support Lennox offers, as cited above, is ambiguous. Consider the first quotation: “… he himself contrived the good in all things that come to be. We must accordingly distinguish two kinds of causal accounts, the necessary and the divine.” This passage is not incompatible with the view I ultimately defend; namely, that the materials the Divine Craftsman can work with are limited by Necessity, and so impose a constraint upon what he is able to do. But working within the framework of these limitations, the Divine Craftsman makes all things that “come to be”—the elements, I will later argue, that emerge from the pre-elements—as good as they can be.

Consider, then, the second quotation that Lennox leans heavily upon for his metaphorical thesis: “We must speak of both kinds of causes but separate those which, with intelligence, are craftsmen of fine and good things, from those which in the absence of foresight, produce their sundry effects at random and without order.” Again, this passage is importantly ambiguous. It could support Lennox’s metaphorical reading. Or it could mean the following: There are two causes, teleological and necessary. But we must be careful not to assign too many things to the category of the “necessary” out of ignorance or lack of foresight. Such ignorance makes certain genuine teleological causes appear random, and so the product of Necessity. Necessity is a genuine cause; but too
much will be attributed to Necessity due to our lack of ability to see the apparently random as in fact planned out by the Divine Craftsman.

As I said, Lennox’s thesis does not admit of refutation. Instead, his view can be shown false by a sustained and careful reading of the text. I will try to show that such a reading of the Timaeus settles the ambiguity of the passages just analyzed, and that Lennox’s interpretation is revealed as untenable.

4.1.3 Against the Exclusively Teleological View: the Need for a Non-Teleological Cause

So far, I have shown that Necessity is not chance-like, thereby rejecting a view that would have entailed an Exclusively Teleological View. I have not argued against metaphorical interpretations of the text because, as I explained, such interpretations are not susceptible to any disproof. Instead, I shall argue that the Timaeus account requires a non-teleological cause. This lays the groundwork for my argument that Necessity, in its wandering state, actually is the non-teleological cause that is required by the text.

The account of the construction of the human head in the Timaeus demonstrates the need for a non-teleological explanation. Since the gods\(^9\) constructing the head are teleological agents, their goal is to create the best possible product. In the case of the human body, the best possible body would be one that allows humans to be both intelligent and long-lived. To meet these goals, the covering for the human head must be thin, for the sake of maximizing intelligence, yet also thick, for the sake of protecting the 

\(^9\) The Divine Craftsman employs lesser gods in the construction of the human body.
head and maximizing human longevity. Here, the teleological agents are clearly restricted: it is impossible for the teleological agents (the gods) to produce such a covering because no combination of the materials they have available to them will yield a material that is both protective and sensitive. Plato explains this as follows:

For there is no way that anything whose generation and composition are a consequence of Necessity can accommodate the combination of thick bone and massive flesh with keen and responsive sensation. If these two characteristics had not refused their concomitance, our heads above all else would have been so constituted as to possess this combination (75a9-b4).

Plato claims that the two desired characteristics of the human skull, thickness and sensitivity, cannot coexist in a material because the two characteristics “refuse their concomitance”, and that they do so “as a consequence of Necessity”.

The fact that Necessity constrains the gods’ construction in this way undermines the idea that Necessity is “ordered and coordinated for the sake of some good” at every level of structure in the cosmos, as Lennox suggests. In this case, the materials the gods use to construct the human head are not “coordinated” or persuaded by a teleological force; rather, they “refuse their concomitance”. They present an obstacle to the achievement of a teleological goal, namely, the ideal human head.

According to this example, the desired material for the human skull cannot be made because of the nature of the materials available to the Divine Craftsman and his gods; namely, that toughness and thinness “refuse their concomitance” in the same material. According to the ET interpretation, Reason (the teleological agent) has complete control over the cosmos. This means that Plato’s description of properties
“refusing their concomitance” is ultimately reducible the some teleological explanation, such as the following: The two properties refuse their concomitance in the same material because a teleological force has designed materials in this way for the sake of some good end. On the ET view, all explanations are reducible in this way because Reason (the teleological agent) always controls Necessity.

Clearly the account of the material for the human skull represents a counter-example to the ET view, that all material explanations are reducible to teleological ones. This particular account cannot be plausibly reduced to a teleological explanation, because such a reduction would imply that the teleological agent is responsible for phenomena that restrict his ability to achieve good ends. Clearly, such constraints must be explained in terms of some type of non-teleological explanation.

4.2 What Type of Account is Necessity?

All ET Views fail to account for the insurmountable constraints upon the teleological agents in their construction of the human head. The ET Interpretation leaves what I shall call an “Explanatory Gap”, a phenomenon that it is incapable of explaining. So far, I have identified the following explanatory gap:

Explanatory Gap 1: Necessity constrains the teleological force by restricting the types of materials that can be made.

In this section, I identify other such gaps, and consider whether and how Necessity may offer an alternative account of these gaps.
4.2.1 Necessity as Wandering Cause and Contributing Cause

Plato explicitly states that the universe is the result of “the victory of reasonable persuasion over Necessity”, which suggests that Necessity is completely controlled by the teleological agent. Necessity does in fact function as a “contributing cause” which “the god uses as subservient in achieving the best result that is possible” (46c7). However, the head example demonstrates that the teleological agent cannot always “persuade” Necessity – he is unable to overcome the obstacle Necessity presents to his construction. When Necessity works independently of the teleological agent, it is called a “wandering cause”. As I argued in the previous section, Necessity is plausibly interpreted as a deterministic cause. Thus, we can suppose that the “wandering” Necessity is a deterministic cause, and that it is independent from the teleological cause – which renders it capable of working against the Divine Craftsman.

The distinction between wandering causes and contributing causes is not a distinction between two different causal forces; rather it is a distinction between two roles played by one causal force. An example of a causal force that may play two roles is fire: when fire is recruited by the gods it is a “contributing cause”, and when fire acts independently of the gods it is a “wandering cause”. I borrow certain points Aristotle makes in his own account of necessity to clarify my interpretation of Plato’s dual-role Necessity. For Aristotle, (de Anima, II 4 416a14 Hett translation; Metaphysics, V 5 1015a21 Tredennick translation) a “simple necessity” is a feature essential to a thing given its nature; for example, it is by simple necessity that fire is hot. A “hypothetical necessity” is a feature a thing must have if it is to serve a specific end. For example, if
fire is to be used to cook food, it must have the feature of making things hot. In this case, fire’s capacity to give off heat is a “hypothetical necessity” in order for fire to cook food. It may seem as though the simple necessity and the hypothetical necessity are the same in this case, since fire also gives off heat by simple necessity. Nevertheless, there is a clear distinction between the two. A hypothetical necessity only refers to a feature the thing must have given a particular goal. It would be absurd to say that the following feature: “fire’s capacity to give off heat in order to cook food”, is a simple necessity of fire; because of course, there is nothing about the possibility of cooking food that is essential to fire by nature. Fire is indifferent as to whether it is cooking food or simply burning your fingers.  

Aristotle’s account highlights certain points that are relevant to understanding Plato’s account. Implicit in Aristotle’s account of hypothetical necessity is the notion that the goals a material is selected for are not intrinsic to the material’s nature. Thus, while fire may be used for a particular purpose, there are no purposes intrinsic to fire’s nature. Aristotle’s account offers a plausible example of a cause that lacks purpose. This lends credibility to Plato’s notion of a wandering cause. For example, fire (a product of Necessity) is a causal force that, by its nature, is indifferent to the effects it produces – it is indifferent as to whether it cooks your food or burns your fingers.

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10 Aristotle says, “For just as there is a necessity that the axe be hard, since one must cut with it, and if hard, that it be of bronze or iron, so too since the body is an instrument [organon] (for each of its parts is for the sake of something, and so is the body as a whole), therefore there is a necessity that it be such a thing and made of such things if that end is to be” (de Partibus Animalium, 642a10-13).
In Aristotle’s account of hypothetical necessity, it is a particular feature of a material that is said to be necessary for achieving a goal. There is a similar nuance in Plato’s account of the contributing cause. Something is a contributing cause only by virtue of a particular feature that is identified as a contributor to the gods’ goals. For example, when the gods construct the human eye, they recruit the “fire within us” (45b7) as a “contributing cause” because it has the particular property of yielding a gentle light; it is by virtue of this feature that the “fire within us” is the best material for their desired end.

The Greek word for ‘contributing cause’ is ‘sunaition’, which is the combination of the word ‘cause’ (aitia) and ‘with’ or ‘together’ (sun-). Sunaition and aitia are related as follows: The aitia is the teleological cause, in this case, the gods’ construction of the human eye according to what is best. The teleological agent persuades fire and uses it as a contributing cause (sunaition) to help him to achieve the best results.

Here I take a brief step away from the Timaeus to point out that Plato’s account of Necessity in the Timaeus represents a development in the theory of causation Plato presented in the Phaedo. Socrates rejects bones and sinews as the cause (the genuine aitia) of his sitting in jail; rather, his having bones and sinews is a necessary condition for remaining in jail. It is “that without which the cause would not be able to act as a cause” (99a-b). Many scholars\footnote{Most notably, Cornford (1935/1997), Lennox (1985), and Strange (1999).} claim that the “necessary condition” in the Phaedo of Socrates’ physical presence in jail, \emph{is the same as} the “contributing cause” (sunaition) of the
*Timaeus*. Socrates of the *Phaedo* relies on his bones and sinews in order to bring his body to jail and remain there, and at first blush, this does sound similar to the gods of the *Timaeus* relying on certain physical processes in order to achieve their ultimate goal.\(^{12}\)

Against this view, I show that the “necessary conditions” of the *Phaedo* are *not* identical to the contributing cause (*sunaietion*) of the *Timaeus*. Previously I referred to Aristotle’s account of hypothetical necessity because it illustrates the notion that a particular feature of a material is selected for a particular goal. Similarly, in the *Timaeus*, the gods select fire for the particular property (yielding a gentle light) that contributes to their end. In the case of the *Timaeus*, fire is a contributing cause *only* by virtue of the particular property of fire gods use to contribute to the gods’ particular goal.

The material facts that constitute “necessary conditions” in the *Phaedo* are not used as contributing causes. Socrates’ bones and sinews are *necessary* for his physical ability to sit. But, as Socrates points out, those same bones and sinews could have just as easily escaped the jail sentence by running off to Megara. In Socrates’ explanation of his jail-sitting, he does not describe his bones and sinews as materials he selected *specifically* because of their contribution to a particular end. If, instead, Socrates had explained that he is using his physical sitting position as a way of conveying peace and lack of resistance to his incarceration, then he would be invoking his physical body as a *sunaietion*, something the agent selects specifically for the sake of his end.

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\(^{12}\) Cornford (1935/1997, p.174-175); Burnet (1911, p.106); Taylor (1928, p.203). Each of these scholars indicates that the necessary conditions of the *Phaedo* are in fact the same as the *sunaietiai* of the *Timaeus*. Alternatively, Johansen (2004, p.103-106) argues a line similar to mine, that the *Timaeus* account of physical explanations is in fact more sophisticated than that of the *Phaedo*. 
Necessity may be plausibly interpreted as representing two distinct types of causes: a contributing cause (when it is functioning as a tool of the Divine Craftsman) and a wandering cause (when it is functioning independently). I have offered a way to interpret these as two causal roles that one thing may play. We have focused in on our conception of Necessity as an independent cause that constrains the Divine Craftsman: now, we know Necessity in its wandering form constrains the teleological agent.

4.2.2 Necessity is Not Formal

So far, I have identified Necessity as a non-teleological cause, and I have shown that it is independent of the teleological agent in its wandering form. It is plausible that this cause constrains the teleological agent, and thus accounts for the candidate for filling the explanatory gaps left by the ET view. Now that I have shown that Necessity is a non-teleological causal force capable of accounting for phenomena, I must investigate what type of non-teleological causal force Necessity must be in order to account for the phenomena described in the Explanatory Gaps. By “type” of non-teleological force I mean Formal, efficient, material, or some variation. Thus my aim in Chapter 5 is twofold: to identify Explanatory Gaps, and to determine what type of non-teleological force Necessity must be to account for these gaps. In this section I consider the view that Necessity is a Formal cause. Ultimately, I conclude that interpreting Necessity as a Formal cause is not a plausible reading of the text, because such an interpretation cannot sufficiently account for the restrictions Necessity places upon the teleological force.
According to this view, Necessity is a Formal account of what is true about a material in virtue of the entailment relations among the Forms in which the material participates. This view is a more developed version of the Form Entailment Interpretation I argued against in my discussion of the clever aitia in the *Phaedo*. Based on the Form Entailment Interpretation of the *Phaedo*, an example of an “entailment” and “exclusion” relation among Forms is as follows: The Form Fire entails the Form Hot, and excludes the Form Cold. The reason that fire, in the sensible world, is hot and not cold is because fire participates in the Form Fire, and the Form Fire entails the Form Hot and excludes the Form Cold. I depict this as follows:

![Diagram of participation, exclusion, and entailment relations among Forms](#)

**Figure 7: Participation, Exclusion, Entailment**

If Necessity is Formal, it would account for Explanatory Gap 1 as follows: Necessity is responsible for the fact that the Form Tough excludes the Form Thin. By virtue of this Formal exclusion relation, it is impossible for a material to participate *both* the Form Tough *and* the Form Thin, and so it follows that no material can be both tough and thin.
Here, Necessity is the Formal account of why a sufficiently tough and sufficiently thin material for the human skull cannot be made.

I claim that this account is untenable: it is implausible to think that the Form Tough excludes the Form Thin. It is reasonable to think that the Form Hot, of Necessity, excludes the Form Cold, because hot, by definition, is not cold. But why would the Form Tough, of Necessity, exclude the Form Thin? There is nothing about thinness that precludes toughness; in other words, it is not conceptually impossible to imagine a material that is both tough and thin. In fact, titanium is an example of a material that is both tough and thin. Clearly, this shows that the Form Tough does not exclude the Form Thin.

I have shown that there is no Formal explanation for why there is no material sufficiently tough and sufficiently thin for the human head. Since Plato explicitly states that is because of Necessity that this material cannot exist, it must be the case that Necessity is not a Formal account. Explanatory Gap 1 remains an explanatory gap.

In the previous section I demonstrated that the text requires a non-teleological account to explain constraints on the teleological agents. In this section I have shown that the requirement is stricter: the text requires an account that is neither teleological nor Formal. Otherwise, Plato cannot adequately account for the fact that there is no perfectly thin and tough material for the human skull.
5. Three Causes in the *Timaeus*

5.1 *Necessity Must Be Both Non-Formal and Non-Teleological*

The account of the constraint on the gods’ construction of the human head must be both non-teleological and non-Formal. What, then, accounts for the constraint the materials place on the Divine Craftsman’s construction? According to the text, no material that is both thin and tough can be made, and so the gods use bone because it is the best alternative. Plato’s description of how the god constructs bone sheds light on the way in which materials constrain his construction:

And bone he constructed as follows. Having sifted out earth that was pure and smooth, he kneaded it and soaked it with marrow; then he plunged the stuff into fire, next dipped it in water, and again in fire and once more in water; by thus shifting it several times from one to the other he made it insoluble by either (73e1-4).

Based on this passage, we can conclude that the Divine Craftsman has some control over the nature of bone; for example, he is able make bone insoluble by dipping it into fire and water. It seems to be the case that the Divine Craftsman can manipulate materials to a certain extent using fire, earth, air, and water. But according to this passage, his ability to manipulate materials is limited – he cannot use the elements to make bone both thin and tough. It seems to be the case that the nature of earth, air, fire, and water, is such that their various combinations yield certain properties and not others. One may compare the teleological agent to a painter who uses yellow and blue paint to make green paint, but is unable to make red paint from these colors. But this analogy ultimately fails: In the case
of the painter, we may suppose that this constraint is due to the fact that both the Form Yellow and the Form Blue exclude the Form Red. In the case of the Divine Craftsman the constraint there is no Formal relation that accounts for the fact that no material that is both thin and tough can be made.

Since the four elements cannot yield the desired properties, why couldn’t the teleological agent add some kind of fifth element to four elements earth, air, fire, and water that would allow for the desired material to be produced? It is clear from the text that he cannot create a new element *ex nihilo*, and so he has *only* four elements available to him. This constitutes an additional explanatory gap:

**Explanatory Gap 2:** There are a particular number of elements (four)

Neither a teleological nor a Formal explanation can account for this fact. A teleological explanation cannot account for these facts, because teleological agent cannot be responsible for a state of affairs that restricts his capacity to produce what is best. There is no plausible Formal explanation for why there are only four elements, because nothing precludes the conceptual possibility that there exist Forms of other elements in addition to earth, air, fire, and water.

In the next section, I shall argue that certain explanatory gaps demonstrate that the text requires a type of account that is both non-teleological and non-Formal. Moreover, I shall claim that Necessity may be plausibly interpreted as offering these non-teleological, non-Formal accounts.
5.2 My View: Necessity is a Material Cause

It is clear that a non-teleological, non-Formal explanation of these constraints is needed, and, based on the type of *explanandum* identified, it is likely that this is a material explanation. But so far, we do not have a positive reason to believe that Plato has the theoretical resources to offer a material explanation, because he has not offered such an explanation explicitly. In this section, I demonstrate that Plato’s account of the pre-cosmos provides a positive reason for attributing a material explanation to Plato: I argue that the account of the pre-cosmos not only *requires* a material explanation, but that it also may be plausibly interpreted as offering one, if only implicitly. Furthermore, I show that these material explanations are independent – they do not function only in combination with Formal explanatory modes as in the case of the hybrid explanations of the *Phaedo*; rather, they are irreducible because they are not overruled by the teleological cause. Rather than relying on the process of elimination alone, we will have an independent reason for thinking that Plato offers material explanations. Moreover, we will have shifted the burden of proof to those who claim he does not.

My argument is based, in part, on my interpretation of Plato’s account of the origin and creation of materials in the cosmos. My aim in this section is to identify explanatory gaps that a Formal or teleological interpretation would leave, and to show that only a material explanation can plausibly fill these gaps.

Recall that the explanatory gaps I have identified involve the presence of a particular type of matter (the four elements) and the fact that there is a material constraint on the Divine Craftsman’s creation. This is why I look to the initial creation of the four
elements for possible insight. Using the element fire as my representative example, I investigate how Plato may account for various aspects of fire’s nature.

I begin with a brief overview of Plato’s account in which I use the following terms:

The pre-cosmos: the state of affairs that exists before the Divine Craftsman comes on the scene to craft the cosmos.

The pre-elements: ¹ In the pre-cosmos there are “traces” (ikne) which each “reflect” one of the Forms Earth, Water, Air, or Fire. I refer to these “traces” collectively as ‘pre-elements’. Individually I refer to the pre-element that reflects the Form Fire (for example), ‘pre-fire’ rather than ‘fire’.

The Receptacle: ² The space in which these pre-elements exist.

In the pre-cosmos, there are pre-elements “reflecting” the Form Fire, the Form Water, the Form Air, and the Form Earth. The cosmos (kosmos) is created when the Divine Craftsman intervenes and imposes order on the pre-cosmos. He does so by giving each of the pre-elements “shape and number”, thus creating the four elements as we know them. I depict this in the following diagram:

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¹ It is a matter of debate as to whether and how the pre-elements differ from the elements (earth, water, air, and fire) of the cosmos. By referring to these as the ‘pre-elements’ I do not intend to make any unwarranted assumptions about their nature; rather, I wish to distinguish them from the elements because their ontological status differs in some way from that of the elements.

² Once again, there is debate about what the Receptacle is. Here, I adopt the most general, least controversial interpretation possible.
According to Plato’s account, the origin of fire is pre-fire, a pre-cosmic entity that “reflects” the Form Fire in the pre-cosmos. The Divine Craftsman gives pre-fire the shape and configuration of a tetrahedron, and thus creates fire.

My aim in this section is to identify explanatory gaps left by both teleological and Formal interpretations. The relevant question is whether and how the Form Fire, pre-fire, and the Divine Craftsman determine the nature of the final product, fire. The upshot of the interpretation I develop here is that it lends insight into Plato’s account of the clever aitia in the Phaedo. The clever aitia offered an explanation of a body’s hotness in terms of a hybrid explanation combining two distinct explanatory modes: matter and form. It is by virtue of participating in the Form Hot that fire is hot. As I suggested in Chapter 2,
fire’s power to heat other objects may be explained by the material component of the clever aitia. Moreover, I suggested that fire’s interactions with other objects at a particular time and particular place may also be accounted for in terms of the clever aitia. The Timaeus account of the pre-cosmos may offer explanations for similar types of phenomena.

Part of the question of how fire’s properties may be explained has already been answered: The Divine Craftsman cannot have exclusive control in determining the nature of the elements, because otherwise he would have crafted them in such a way to allow for the perfect material for the human head. Instead, the job of the Divine Craftsman is to configure the pre-elements with shape and number; in other words, he gives them structure and geometrical shape.

Before [the motion of the Receptacle], all these kinds were without proportion or measure. Fire, water, earth and air possessed indeed some traces of their own nature, but were altogether in such a condition as we should expect for anything when deity is absent from it. ... the god then began by giving them a distinct configuration by means of shapes and numbers (53a9-b8).

So the question, “Why do fire’s particles have the shape they do?” has the following answer: “The Divine Craftsman gave fire’s particles a tetrahedral shape, because the Divine Craftsman thought this was the best shape for them.” Further, one might add that fire’s participation in the Form Hot accounts for fire’s hotness. But we are left with an aspect of fire’s nature that has not been accounted for. Consider: can either the teleological or the Formal account explain what is true about fire by virtue of fire’s physical instantiation? Fire’s behavior when it interacts with other physical objects, for
example, can be accounted for only in terms of fire, *qua* physical object. One such behavior is fire’s *ability to make other things hot*. It is clear from the text that the Divine Craftsman does not endow the elements with abilities. Thus, the Divine Craftsman is not the source of fire’s *ability* to make other things hot. And it is obvious that a Formal account of hotness cannot explain fire’s ability to heat other things: since a Form is *immutable*, it is incapable of functioning as an *explanans* involving change.

Can the pre-elements be the source of fire’s ability to make things hot? On most interpretations of Plato’s account of the pre-cosmos there is no material cause; more strongly, *nothing* in the pre-cosmos is capable of functioning as a cause at all. Thomas Johansen argues that nothing in the cosmos has “sufficient reality” to possess causal efficacy.\(^3\) Several passages seem to support this view. The pre-elements are described as “traces” of fire, earth, air, and water, and “reflections” of the corresponding Forms. They are “without proportion or measure”, and seem to be in a state of flux in which “they transmit in a cycle the process of passing into one another”. Plato goes so far as to suggest that the pre-elements are so volatile that they cannot secure linguistic reference: “They slip away and do not wait to be described as ‘that’ or ‘this’ or by any phrase that exhibits them as having any permanent being” (49e2-4).

Based on these passages, it seems implausible to regard the pre-elements as material causes. It is hard to imagine that these volatile “traces” are ontologically thick enough to contribute anything to the nature of the element they become, and even harder

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\(^3\) Johansen (2004, p.97).
to imagine that they constrain the Divine Craftsman’s creation of this element. In contrast to this prima facie reading, I shall argue that the pre-elements can be plausibly interpreted as the basis for both material and efficient explanations. Perhaps it is misleading to call the pre-elements ‘materials’, because this suggests that they are akin to Aristotelian materials. The pre-elements are not materials in this robust sense; however, as I shall argue, the pre-elements have the same causal potency as materials: the pre-elements are entities that produce physical effects.

First, I must consider whether the pre-elements are ontologically thick enough to contribute to the final product in the way I suggest. The following passage describes the motion in the pre-cosmos:

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. … it 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 (52d6-53a8).

Plato goes on to tell us that the motion of the Receptacle causes like things to tend towards like: the dense and heavy pre-elements are carried to one region of the Receptacle, while the light and rare ones go to a different region. Nowhere in the entire passage describing the activities of the pre-elements are the Forms even mentioned. Of course, the Divine Craftsman is not mentioned because he is not present in the pre-cosmos. Instead, Plato gives a non-teleological non-Formal account of the mechanics of a series of physical events: Why are the fiery pre-elements in this region rather than another? Answer: Because they are the lightest, and this lightness causes them to
separate from the heavier elements when the Receptacle is shaken. Plato points to a physical quality, lightness, as the cause.

We can deduce that the pre-elements have some physicality to them based on the following three facts: 1) they have effects, 2) they can be moved, and 3) they are light, rare, heavy or dense. Additionally, and related to (1), since it is the imbalance of powers that begins the motion, we can conclude that the pre-elements have powers of varying effects.

Regardless of the various interpretive issues in the pre-cosmos, it is clear that Plato does refer to the pre-elements as powers, as the passage just cited evidences. He uses the word ‘dunamis’ which is translated as ‘power’. Thus it is possible that we may answer the question, “Why does fire have the ability to make other things hot?” in the following way: Fire’s powers are derived from the firelike power in the pre-cosmos. Based on our discussion so far, it appears that the pre-cosmic firelike power is the only possible source for fire’s ability to make things hot: the Forms cannot be the source of a thing’s motion or interaction with other sensible objects, and the Divine Craftsman only provides the geometric structure of fire. He does not create the stuff contained within this geometric shape (in this case, fire).

Those who would object to my proposal might do so on the following grounds: Plato says that because the pre-elements are in a constant process of changing into one another, the pre-elements cannot secure linguistic reference.

…and thus, as it appears, they transmit in a cycle the process of passing into one another (49c7-8).
Because of this constant changing, we cannot call a pre-element a ‘this’.

...they slip away and do not wait to be described as ‘that’ or ‘this’ or by any phrase that exhibits them as having any permanent being (49e2-4).

Here I consider two interpretations of these passages.

A stronger reading of the passage interprets the pre-cosmic flux as being the same as the flux described in the *Theaetetus* (181a-182b Levett translation): Everything is changing in every respect at every moment in time. In the *Theaetetus*, Plato says that if this were the case, then language would be impossible. Proponents of the stronger reading interpret the pre-cosmos passage in the same way: The reason Plato says that a pre-element cannot be called a ‘this’ is that the flux it is in renders impossible any linguistic reference. Plato goes on to say that the pre-elements do not have permanent being. Based on these three facts: (1) that the pre-elements are in flux, (2) that our language cannot even secure a grip on them, and (3) that they are impermanent, proponents of the stronger reading conclude that that the pre-elements are ontologically thin -- so thin, that they do not have sufficient reality to have any causal efficacy. In other words, the stronger reading would pose the following rhetorical questions, “How could such an ontologically thin entity possibly have a determinate nature? If it does not have a determinate nature, how could it possibly contribute anything to the final product?” We are left with the conclusion that the only things capable of determining an element’s nature are the Forms and the Divine Craftsman.
David Hunt⁴ offers the most plausible version of this. He claims that the only consistent reading of the text is one according to which the pre-elements are “reflections”. We may understand the pre-elements as merely fleeting images of the Forms. One may imagine that the Receptacle is a chaotically-spinning mirror in which these reflections are cast.

The problem with this stronger reading is this: It fails to explain how the Divine Craftsman can take reflections, which are non-physical, and make them into the elements, which are of course physical. Furthermore, proponents of this reading have no story to tell about how such a reflection could endow fire with the ability to make objects hot. This stronger interpretation does not account for the fact that Plato explicitly calls the pre-element ‘powers’, and the fact that their activity in the Receptacle suggests that the pre-elements are physical.

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. … it 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… (52d6-53a8).

If, as the stronger reading holds, the pre-elements are merely “reflections”, how can they exhibit these physical behaviors, such as being light and rare, or being thrust to another region? The stronger reading does not answer this question.

A more moderate reading would suggest that the pre-elements must not be called ‘thises’ only because they are not substances. In other words, the reference ‘this’ is

reserved for only permanent things, such as the Forms, and substances in the world. Plato’s claim that the pre-elements are not thises needn’t imply that they do not have any identity. It just refers to the fact that they are entities of a different ontological category than substances. This is why Plato recommends the following: “We should not use these expressions of any of them, but ‘that which is of a certain quality and has the same sort of quality as it perpetually recurs in the cycle’” (49e5-7).

According to the text, even though a pre-element is not a “this”, we can still identify it as “the same sort of quality” that perpetually recurs in the cycle. I claim that this is an indication that there is an individuation of different “things” in the pre-cosmos, and that these “things” have partially determinate natures, and finally, that the nature of these “things” ultimately contributes to the nature of the final products: the elements. Here I shall consider whether this interpretation is consistent with the text

Mary Louise Gill⁵ proposes the most plausible version of this reading. She suggests that the pre-elements are “sets of geometric principles” that the Divine Craftsman then incorporates into the final product, which is the element itself. The problem with Gill’s view is this: She does not tell us how it is that sets of principles – non-physical things – can become physical fire. Furthermore, she does not explain how geometrical principles could provide fire with the power to heat other objects. Certainly, there is no geometrical principle capable of somehow containing a script of the first law of thermodynamics that can then be imbued in the element fire.

Another problem with the moderate reading remains. Although, according to the moderate reading, a pre-element is identifiable as it recurs in a cycle, it is still the case, as Plato explicitly says, that the pre-elements are impermanent and unstable. Thus we are still left with the question of how an impermanent, unstable, thing could possibly have “sufficient reality” to contribute to the final product. Even if we interpret the pre-element as a “set of geometrical principles”, as Gill claims, we must still explain the way in which it is impermanent. The moderate reading does not address this question.

I considered two interpretations of the pre-elements, but neither one offers us a complete story of whether the pre-elements possess sufficient reality to contribute to the final product (the element) and how the pre-elements might contribute to the final product. We are still left with an explanatory gap: Based on the head example, it is clear that it is material that constrains the Divine Craftsman. The explanatory gap is lack of a complete account of why the materials in the cosmos have the properties they do. Recall the description of the construction of bone:

Having sifted out earth that was pure and smooth, he kneaded it and soaked it with marrow; then he plunged the stuff into fire, next dipped it in water, and again in fire and once more in water…(46e).

The reason that the Divine Craftsman cannot make bone into the perfect material is that he is constrained by the elements he has to work with. Why are these elements the way they are? We have said that fire is hot because it participates in the Form Hot, and we have explained that fire gets its structure from the Divine Craftsman. But we have yet to explain why fire has the power to make other things hot. From the passage we just looked at, the Divine Craftsman relies on fire’s ability to make things hot in the process
of making bone, just as he relies on water’s ability to make things wet. The question is: How does Plato account for these aspects of an element’s nature?

5.3 A Final Suggestion

As I stated previously, my proposal is that the pre-elements are the source of the elements’ abilities with regard to other objects, but now I must consider whether this proposal can respond to the objections I have outlined. The task is to reconcile my view about the pre-elements with the two aspects of the pre-cosmos which have generated debate: First, the fact that the pre-cosmos is in flux, and secondly, the fact that the pre-elements must not be called ‘thises’.

First, let us consider the nature of the pre-cosmic flux. Prima facie, one might think it plausible to assume that Plato’s notion of pre-cosmic flux is consistent with his notion of flux as he describes it in the Theaetetus (181a-182b). Plato’s notion of flux in the Theaetetus is based on his interpretation of Heraclitus’ doctrines, which, according to Plato, describe flux as a state in which everything changing in every respect at every moment in time. But Plato goes on to point out that this notion of flux is nonsensical: If an object is changing in every respect at every moment in time, then ‘P & not-P’ is true of it. This violates the law of identity. Plato concludes that “Heraclitean flux” is a contradictory notion. Moreover, Plato points out that the Heracliteans have “no words to express themselves” (181b). Since there is no identity in Heraclitean flux, there is nothing to secure linguistic reference.
Plato’s description of the pre-cosmos in the *Timaeus* suggests that it is in some kind of “flux”. If it is the case that the pre-elements are in Heraclitean flux, then they would be changing in every respect, and ‘P & not-P’ would be true of every pre-element. Pre-elements, as such, would have no identity. It might seem plausible to conclude the following: Plato’s statement that the pre-elements cannot be called ‘thises’ is meant to imply that they cannot be referents for words, and that they cannot be referents because they lack identity, and finally, that they lack identity because they are in Heraclitean flux. I shall argue that this conclusion is unwarranted.

Recent scholars, most notably McKirahan,⁶ have rightly claimed that Plato’s account of Heraclitean flux in the *Theaetetus* is a *mis*interpretation of Heraclitus’ notion of flux. To avoid confusion, I will call the McKirahan interpretation of Heraclitean flux, simply “patterned flux”. In patterned flux, everything is in a systematic pattern of replacement. Each thing is changing, but not in *every* respect. As such, each thing has at least a partially determinate nature.

Plato says that we can identify a pre-element as “that which is of a certain quality and has the same sort of quality as it perpetually recurs in the cycle” (49e5-7). This lends plausibility to the notion that the pre-elements each have a partially determinate nature. But if the pre-elements are identifiable in this way, why can they not be called ‘thises’? Things in the sensible world are part of a “patterned flux”, and they may be called ‘thises’, so why can’t the pre-elements be called ‘thises’?

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The reason the pre-elements cannot be called ‘thises’ is that their ontological status is distinct from that of the sensible world. Plato says, “Only in speaking of that in which all of them are coming-to-be (meaning the Receptacle) … may we use the words ‘this’ or ‘that’ (49e8-10). In other words, the reference ‘this’ is reserved for only permanent things, such as the Forms or the Receptacle, or for things that exist in the sensible world. Things in patterned flux, such as things in the sensible world, also can be referred to as ‘thises’ but only because they have spatial-temporal continuity. Heraclitus’ famous example of the river illustrates this notion: We cannot step into the same river twice because its waters are constantly changing. But because the river has spatial-temporal continuity, we can identify the river the ‘Mississippi River’. In contrast, a pre-element cannot be called a ‘this’ because it lacks spatial-temporal continuity. Recall that the Divine Craftsman must give the pre-elements configuration and number, indicating that before the Divine Craftsman’s intervention, the pre-elements lack the configuration and number of spatial-temporally continuous “thises”. Though the pre-element “firelike” as it recurs in a cycle is not numerically the same, it is qualitatively the same – and that is why we can identify the “firelike” every time it recurs in the cycle.

The pre-elements are in a patterned flux, and they have some identity, even though they are not ‘thises’. This is enough to suggest that they have at least a partially determinate nature, which may indicate that they have sufficient reality to contribute to the final product. Moreover, the text suggests that the pre-elements are in a physical position that allows them to contribute to the final product. Here I return to Plato’s
description of the pre-cosmic arrangement that obtains before the Divine Craftsman comes on the scene:

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. …it 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… (52d6-53a5).

It is significant that the light and rare things are separated from the dense and heavy ones; as Plato says “the different kinds came to have different regions”. When the Divine Craftsman comes on the scene, what he sees is a distinctly fiery region, a distinctly watery region, an earthlike region, etc.

According to this picture of the pre-cosmos, it is plausible that the firelike power contributes to the nature of the element, fire, because the Divine Craftsman’s creation of the elements does not come from uniform, featureless stuff. The question, “Why is it that the Divine Craftsman makes this group of stuff into fire?” can be answered: “Because it the stuff in this distinct region of the Receptacle is firelike.” Based on this, I suggest that the pre-elements are powers. Even though firelike powers cannot be called ‘thises’, the firelike powers are physical stuffs that are always fiery. This allows for the possibility that the firelike powers are the precursor to powers of the element fire, such as the power to heat other objects. This interpretation has crucial implications for Plato’s theory of explanation: Plato offers efficient explanations, such as the location of the pre-elements in a particular place in the cosmos and their physical interactions within it. He also offers an independent, irreducible material explanation: there is physical stuff that has firelike
powers, and this stuff contributes to the nature of the element, fire. Some of fire’s behaviors, such as its power to heat other physical objects, might be explainable in terms of this physical stuff. Such an explanation would be an irreducible material explanation.

Does this lend insight into the restriction materials seem to present to the Divine Craftsman? The answer, I propose, is this: The Divine Craftsman wants to make a material to cover the human brain that would offer both adequate protection and sufficient sensation, because the Divine Craftsman thought it would be best if humans were as intelligent and long-lived as possible. The Divine Craftsman is restricted by the materials he has available to him, and furthermore, he is restricted by the fact that he cannot change the nature of these elements. Why is it that he cannot change the elements? The answer is that each element’s nature is determined by three things: the Forms, the Divine Craftsman, and the pre-elemental powers. Even though the Divine Craftsman does have a hand in creating the elements, the only thing he contributes to them is their configuration and shape. Fire’s participation in the Form Fire only accounts for properties that are static; for example, fire is hot because it participates in the Form Fire (or because it participates in the Form Hot). Participation in a Form cannot account for a property a thing has only by virtue of its being a physically instantiated object. Such properties would include anything regarding fire’s behavior in its interaction with other objects in the world. I have suggested that fire’s power to heat other objects in the world can be accounted for only in terms of the pre-cosmic firelike. Now we have accounted for fire’s nature, and using the same method, we can account for the nature of the other three elements.
We can conclude that the nature of the four elements is such that *bone* is the *best possible* material that the Divine Craftsman can construct for the human skull. One might compare the Divine Craftsman’s situation to that of metallurgists attempting to build the best alloys for some purpose or another. They can combine various metals in various proportions to produce alloys with different properties, and so design alloys that are best suited to some purpose. But metallurgists are “stuck”, as it were, with their initial ingredients. Their freedom to construct new alloys is limited, then, by the properties of available, existent metals.

The larger motivation for this investigation is Aristotle’s implicit criticism that Plato fails to offer adequate explanations because he does not incorporate material as an explanatory mode. *Prima facie*, Plato does offer material explanations in his description of the human head. But these material explanations are usually thought to be reducible to Formal and teleological explanations. As I explained, this “reductionist” view leaves an explanatory gap. Contrary to this reductionist view, I have offered a type of explanation that fills this gap – one that is non-Formal, non-teleological, and irreducible: Fire derives its ability to make other things hot from a pre-cosmic power – not a Form, and not the Divine Craftsman. I have offered an irreducible explanation that accounts for a previously unexplained phenomenon.

Aristotle’s suggestion that Plato is *merely* a “formalist” who neglects to offer material explanations seems entirely misguided. Instead, we are left with the impression that Plato offers more sophisticated and nuanced types of explanations than previously thought.
6. Conclusion

My investigation of Plato’s theory of explanation began with my examination of a passage in the *Phaedo* in which Socrates develops three distinctive types of explanations: teleological explanations and the efficient and clever aitia of his Formal explanations. As touchstones for my investigation I used Aristotle’s criticism which suggests that Plato lacks the theoretical resources to properly account for matter in his theory of explanation. I also referred to Aristotle’s critique that Socrates of the *Phaedo* commits himself to the absurd conclusion that Forms are efficient aitiai. Contrary to the naïve understanding of explanation that these criticisms seem to attribute to Plato, I demonstrated that the theory Plato develops here is richer than one may have expected.

More specifically, I offered an interpretation of Plato’s critical survey of his predecessors’ explanations according to which his criticisms form the basis of his development of a strict notion of causation that is highly structured and well-defined. This lays the groundwork for my discussion of teleological explanation, in which I brought to the surface the ways in which the Platonic Teleological Explanations differ from other teleological explanations. Finally, I developed a novel interpretation of the clever aitia according to which it is an advanced hybrid type of explanation that invokes both Form and matter as explanatory modes. This insight into Plato’s clever aitia has crucial implications for our understanding of Plato’s theory of explanation in general: By demonstrating that Plato has his theoretical capacity to incorporate matter as an explanatory mode I not only offered a reason to reject Aristotle’s suggestion that Plato is
unable to offer material explanations, I also suggested that we may plausibly interpret the *Timaeus* account of material causation as a development of this earlier view. The upshot is that it demonstrates Plato’s interest in and capacity to offer an irreducible and legitimate material explanation – a type of explanation that is not traditionally attributed to him.

My examination of the *Republic* demonstrated that the Theory of Forms in the *Republic* does not have a teleological component. It may seem reasonable to think that the Form of the Good plays a role in Platonic Teleological Explanations. I argued that the two cannot be conflated: The Form of the Good is an account of an object’s *being*. It is “causal” only in the sense that it is the cause of Being and Intelligibility in the realm of Forms, but it is incapable of effecting change in the sensible world. This shed light on certain features of Platonic Teleological Explanations: they can explain why a particular state of affairs obtains at the particular time it does and in the particular way it does. In this way, it can serve as a “local” explanation of phenomena. An explanation in terms of the Form of the Good is incapable of offering such an account.

In my discussion of the *Timaeus* I argued against exclusively teleological interpretations of his cosmology by showing that Necessity constitutes an independent cause that constrains the teleological agent’s creation. After examining the layers of complexity of this concept, I concluded that Necessity may be plausibly interpreted as a material cause that is independent of and irreducible to any other type of explanation. I suggested that Plato’s account of the clever *aitia* in the *Phaedo* can be seen as the basis of his development of a richer account of material causation may which lend insight into the
source of matter’s ability to affect other objects in the sensible world. The *Timaeus* account thus represents the culmination of Plato’s theory of explanation that incorporates teleological, Formal, and material explanations that are far more sophisticated than previously expected. This does not merely constitute a reason to reject Aristotle’s criticisms, it also brings to the surface unique aspects of Plato’s theory of explanation that demonstrate its remarkable nuance and surprising resourcefulness.
Bibliography


**Biography**

Elizabeth Jelinek was born in Freehold, New Jersey. She attended Wellesley College (2001) where she received her B.A. in Philosophy. She continued her study of philosophy at Duke University where she developed her specialty in ancient Greek metaphysics and epistemology under the direction of Dr. Michael Ferejohn. Elizabeth is beginning her career as an Assistant Professor in the Department of Philosophy, with a joint appointment in Classical Studies, at Vanderbilt University in Nashville, Tennessee.

This is dedicated to my friends and family.