Bridget Brasher

IS ARISTOTLE'S UNMOVED MOVER CAUSALLY REDUNDANT?

On dunamis *in the heavenly bodies*

I. Introduction: understanding the redundancy problem

That Aristotle believes an unmoved mover both enables and brings about motion in the universe is taken as basic by interpreters. Throughout *Physics* VIII and *Metaphysics* Lambda 6–10, Aristotle assigns a superlative importance to this eternal, imperceptible substance. It is uniquely pure *energeia*, is absolutely prior, and is ultimately, indirectly responsible in some way for all generation and destruction and change throughout the celestial and sublunar realms. Aristotle considers the unmoved mover, in this way, to be a kind of primordial necessary condition.

Moreover, the unmoved mover is said to maintain this role by directly exerting some sort of causal influence on the heavenly spheres, such that the spheres thereby move eternally, and in turn transmit changes downward through the celestial and sublunar realms. Upon getting the spheres to move, then, the unmoved mover's vast influence is mediated by and transmitted through the spheres' own motion.[1] The problem that I will address in this paper is that, it seems, the spheres are apparently bound to move in any case—for it seems that, in virtue of a fact about themselves, they can never stop moving. And thus, Aristotle's primordial necessary condition appears to be little more than a mere redundancy.

---

[1] That the unmoved mover's alleged causal influence is exhaustively mediated by the heavenly spheres is not uncontroversial. For some interpreters have read a kind of cosmic teleology directed towards the unmoved mover in Aristotle (See Kahn, 1985, Lear, 1988). Those with this approach may not be fazed by the unmoved mover's causal inefficacy with respect to the spheres, since, they would maintain, its causal influence was never meant to be exhausted by its effect upon the spheres in the first place. Whether or not one is a cosmic teleologist about Aristotle, however, it is clear that Aristotle believes that the unmoved mover has a causal effect upon the spheres (See *Phys.* VIII and Lambda 6). And thus, we must salvage its relevance in at least this respect. The focus of this paper is only this particular case of causal efficacy, and thus does not consider the risk at hand to be one of *absolute* redundancy.

The conflict concerning the question of the unmoved mover's causal efficacy with respect to the heavenly spheres exists principally between the following two claims:

(1) The heavenly spheres are moved by an unmoved mover
(2) The heavenly spheres lack a *dunamis* for movement

Concerning the first claim, (1), in Physics VIII—and to an extent again in Lambda 6–7—Aristotle argues that the eternal, continuous motion of the heavens must be caused by a mover that is itself unmoved (259b32–260a10).[2] He reasons that, first, there has always been and will be motion. And, further, every thing that moves (intransitive) must be moved by something. But a chain of movers cannot go on infinitely, and thus, there must be some first mover (transitive). Since it is not itself caused, this first cause must either engage in self-motion, or be unmoved and bring about motion as an unmoved mover. Aristotle then offers an analysis of self-motion, maintaining that self-motion entails a bifurcation of the substance into a moved and unmoved part, the latter moving the former. The continuous generation and destruction of animal self-movers, he reasons, must be due to the presence of some continuous, eternal circular motion (i.e. the heavenly spheres). This circular motion is either the first cause, by being itself a self-mover, or is caused by some further thing. But, Aristotle reasons, the unmoved part within a self-mover cannot be responsible for such continuous, eternal motion, since it is accidentally moved when it moves. Thus, the first cause is something transcendental to the eternal circular motion, and—since it must bring about eternal, continuous motion—is itself absolutely unmoved.

But claim (2) ostensibly entails that the heavenly spheres require no such mover. In Theta 8 1050b6–28, Aristotle seemingly argues that the spheres have no *dunameis* (including no

[2] I follow Judson (1994), representing the standard view, and go against Kosman (1994) and Broadie (1993), in thinking that there is a break between Aristotle's thinking about the origin of motion in *De Caelo* and his thinking in *Physics* VIII and Lambda, such that the latter assume a transcendent mover, whereas the former does not.

dunamis for motion).[3] For, he apparently reasons, all *dunameis* may fail to be actual, but eternal things are imperishable—they cannot fail to be actual. Therefore, they lack a *dunamis*, e.g., for motion—there is no *dunamis* to be or not be realized. They simply *move.* And there is no possibility that they ever stop moving—no fear that they could rest.

And we might think, if it is the case that the bodies are necessarily moving in virtue of a fact about themselves (i.e. their lack of *dunamis*)—such that so long as they exist (which they necessarily do eternally) they are guaranteed to keep moving—then what need could they have for the unmoved mover's causation?[4] It seems that, by themselves, the bodies and their lack of *dunamis* are a sufficient condition for their motion. They would, even when taken in isolation, otherwise still move. But if, on the contrary—apparently contra Theta 8—they *did* have a *dunamis* for movement, then there would be room for a need for the unmoved mover's causation.

Moreover, owing to such lack in *dunamis*, the unmoved mover's causation upon the spheres may not merely be unnecessary, but also apparently impossible. For, we might think that lacking a *dunamis* for motion is *incompatible* with being moved, since, one could argue, being moved consists in precisely the actualization process—that is, going from merely potentially moving to actually moving. And so, to lack the requisite potentiality to undergo such actualization is to foreclose the possibility of being moved.

Thus, the question of the redundancy of the unmoved mover may reduce to the question of whether the spheres lack a *dunamis* for movement, and whether this is what Aristotle maintains at Theta 8 1050b6–28. A tempting way, then, to seek to resolve the redundancy is to

[3] As we will see, there will be an important exception at 1050b21 for a *dunamis* for 'whence and whither.'
[4] I am assuming, contra Bodnar (1997, 170, fn. 53), that the unmoved mover does not bring about their *existence* as well as their motion. Rather, I take the existence of eternals to be the sort of thing that does not require an explanation. Now, this is not an entirely unproblematic position for me to take. For I will want to leave it an open question whether the movement of the spheres is essential to them. And one might think, if the unmoved mover is responsible for the motion of the spheres, and if the spheres' motion is a condition of their being *the spheres*, then the unmoved mover is in a way responsible for their existence as well.

contest this reading of 1050b6–28, and maintain that, on the contrary, Aristotle *does* allow the heavens to possess a *dunamis* for motion. And indeed, two recent attempts have been made by Lindsay Judson (2016) and Christopher Frey (2015) to do just this—to deny that 1050b6–28 in fact prohibits *dunameis*, and in particular a *dunamis* for movement, amongst eternal substances.

In this essay, I will offer my own reading of Theta 8 1050b6–28. I will argue that there is no way to read 1050b6–28 as allowing for a *dunamis* for movement. I will then present the accounts of Frey and Judson. I will argue that, not only is Frey's account a flawed reading of 1050b6–28, but even if it were a correct reading, it would not help in mitigating the redundancy issue. I will maintain that Judson's account, while indeed helpful towards the issue of the unmoved mover's redundancy, cannot stand given the text of 1050b6–28. I then address some final worries for my reading of 1050b6–28 not considered in the treatments of Judson and Frey.

I will therefore maintain that we must reconcile the fact of there being no *dunamis* for movement in the heavenly spheres with the causal influence of the unmoved mover upon those spheres. At the end of the paper, I will sketch two possible ways of doing so, and will discuss problems with both. The first possibility will be to maintain that, in the exceptional case of the spheres, the efficient causation of some *y* upon some *x*—i.e. *x*'s being moved by *y*—does *not* presuppose an actualization process, whereby an underlying capacity is 'actualized,' and so the spheres need not possess a requisite capacity for motion.

A second possibility is to maintain that the unmoved mover acts as a final cause, and only as an efficient cause insofar as it is final. On such a case, the souls of the spheres are directly responsible for the spheres' movement, and act out of a compulsion to move. Their moving, however, is precisely out of love for the unmoved mover, which is a sort of 'motivation' for their movement. This solution is appealing, since it ostensibly allocates a kind of self-sufficiency to

the spheres in their movement, while nevertheless retaining the unmoved mover as a necessary condition and 'stimulant' of that movement. Both this solution and the former will have their own problems, which may be surmountable by offering particular readings of Aristotle.[5]

But I will ultimately argue that both solutions share a problem which is insurmountable. This is due the fact that an absence of a *dunamis* for motion renders the spheres necessarily in motion. And to say that they are necessarily in motion in this way is to say that they would *otherwise move*—that, if the spheres were taken in isolation, they would still move. And this fact is simply incompatible with any picture in which the unmoved mover, as a transcendent mover, is a necessary condition for the sphere's motion—such that, without the unmoved mover, the spheres would *not* otherwise move.

II. A Reading of Theta 8, 1050b6–28

I divide my reading of 1050b6–28 into the following three sections, and do so for the following reasons. First, I begin with Aristotle's explicit intention for the passage, namely, the demonstration of a new sort of priority in substance of *energeia* over *dunamis*. Understanding what precisely this priority relation is meant to be, and recognizing that Aristotle's arguments in 1050b6–28 are meant to substantiate this new sense of priority, enables us to see why it is important for Aristotle that there be no *dunameis* in the spheres. And, indeed, we see that he must have maintained such an absence, given the demands of the priority relation he sets out to prove. The structure of this new priority relation, however, is unusual, and thus what it is meant to show is not straightforward. For, uniquely, at 1050b6–8 Aristotle makes a priority comparison

[5] It is important to clarify a distinction that may be relevant in this second solution. Theta 8 poses—primarily for the purposes of this essay—the problem that the spheres have no *dunamis* for motion. This alone is (apparently) directly in conflict with the fact of their being moved. But Theta 8, we will see, does not merely restrict a *dunamis* for motion, but other *dunameis* appear to be excluded as well. And this near-general prohibition may raise a yet further conflict when specifying the precise nature of the causal relation. For, even if we are able to address the conflict with a lack in *dunamis* for motion, the causal process that obtains in the spheres nevertheless seems to presuppose that they are at points *dunamei* in other ways.

between one set of things, eternals and perishables, in order to demonstrate a priority relation between a second, separate set of things, *energeia* and *dunamis*. And it is unclear how the latter is meant to follow from the former, and whether the priority relation is meant to be the same in both cases. What restrictions—if any—are required concerning the presence of *dunameis* in the spheres depends upon how we settle the priority question, and thus a treatment of it is necessary.

After discussing the priority relation, in the second section I offer an analysis of Aristotle's argument at 1060b8–18 that the spheres must lack *dunameis*. I present the predominant interpretation of the argument against *dunameis,* that offered by Stephen Makin (2006) and Jonathan Beere (2009), and maintain that, while Makin and Beere are correct that Aristotle specifically denies the spheres a *dunamis* for motion, they are—as Judson (2016) rightly notes—wrong to read Aristotle as explicitly maintaining this in his initial argument at 1050b8–18. For, they are wrong to see Aristotle as operating on a general principle <if eternally and continuously F, then no *dunamis* for F> in the argument at 1050b8–18. Rather, Aristotle's argument, as presented, applies only to imperishability in substance, and we only realize that Aristotle intended the 'no *dunameis*' restriction to apply to motion via this general principle once we continue on in the passage.[6] For only later, and separately from the initial argument, does Aristotle explicitly deny a *dunamis* for motion and grant an exception for the *dunamis* for 'whence and whither.' And I maintain that, only through this later explicit claim about motion, taken in conjunction with the exception of 'whence and whither,' can we infer the general principle assumed by Beere and Makin.

[6] Cf. footnotes 4, 14, 17, 24, 37, 38, where I discuss the possibility that imperishability in substance already *includes* the sphere's motion, such that the explicit argument at 1050b8–18 includes motion in its scope. This would be the case if the spheres' motion were necessary to their being *the spheres.* But, as I note (fn. 37), there are compelling arguments on both sides for whether this motion is indeed essential, and so I leave this an open question throughout.

Thus, in the third section I offer an interpretation of the 'whence and whither' exception. I consider two alternatives for why 'whence and whither' is exempted: first, that it is not *necessarily* the case, and second, that it is not *continuously* the case. I argue against the former, and, like Beere and Makin, settle on (a particular reading of) the latter.

§1. The priority in question at 1050b6–28

Aristotle begins the passage at 1050b6–28 with the following:

> But [actuality is prior to potentiality] in a stricter sense also; for eternal things are prior in substance to perishable things, and no eternal thing is potentially.[7]
>
> Ἀλλὰ μὴν καὶ κυριωτέρως· τὰ μὲν γὰρ ἀΐδια πρότερα τῇ οὐσίᾳ τῶν φθαρτῶν, ἔστι δ' οὐθὲν δυνάμει ἀΐδιον. (1050b6–8)

Thus, we have the general argument structure,

1. eternal things are prior in substance to perishable things
2. no eternal thing is *dunamei*
3. therefore, *energeia* is prior to *dunamis,*

such that, Aristotle concludes that there is a priority relation between *energeia* and *dunamis* on the basis of the fact that, first, there is a priority relation between eternal things and perishable things, and, second, eternal things are not *dunamei.* What is striking about this is that Aristotle infers a priority relation between one set of things, *energeia* and *dunamis*, from a priority relation between a different set of things, eternals and perishables. Is it the same sort of priority in both cases? And what is the relation between the first and the second set, such that a certain sort of priority's holding for one entails that another (if not the same) sort of priority holds for the other? Henceforth, I am going to call the state of affairs in which it is the same sort of priority in both sets, 'transitivity.' When settling on what sort of priority is meant to obtain here, I will consider what would hold if that priority were transitive (applicable to, both, the relation between eternals

[7] I use the Ross (1928) translation throughout, with occasional modifications of my own.

and perishables, and to the relation between *energeia* and *dunamis*), as well as what would hold if it were merely intended to be applicable to the relation between eternals and perishables. Throughout, I will consider the implications for the presence of *dunameis* in the heavens.

Three principal options have been proposed by interpreters for what the priority relation might be between eternals and perishables (if not that between *energeia* and *dunamis* as well). Before introducing each, I will briefly argue that the sort of priority in substance offered at 1050b6–8 must differ from that priority in substance offered just prior, at 1050a4: namely, Aristotle maintains at 1050a4–5 that "the things which are posterior in becoming are prior in form." The examples he gives for this earlier sense of priority include the adult man to the boy (who is to become that adult man), and the human being to the seed (which is to become that human being). Each example demonstrates the priority, Aristotle reasons, because, in each case, the former already possesses the form, while the latter does not (yet) possess that form. And in each case, the form expressed by the former is the "principle" (*arche*) and "end" (*telos*) towards which the latter strives. The former is thus prior with respect to the latter.

We should see why this sense of priority cannot be that which Aristotle evokes at 1050b6–8. For, in the foregoing cases, the members of the priority relation share the same form, with one at a later stage of development than the other, the former striving to become the latter. And this is not the relation amongst perishable and eternal things. Perishable and eternal things do not share a 'form,' such that eternals more fully realize this form than perishables. Thus, we should see Aristotle as proposing a new sense of priority in substance at 1050b6–8.[8]

[8] There is thus a question of how they could both be called 'priorities in substance' without accepting the unfortunate conclusion that Aristotle does not have a univocal account of 'priority in substance.' I do not have space to consider this worry here.

So, what sort of priority is Aristotle proposing at 1050b6–8?[9] As I noted, three principal interpretations have been offered by commentators: (1) that the relation is an existential priority—embraced, for instance, by Beere and Makin; (2) that the relation is an essential priority, proposed by Peramatzis (2011); and (3) that the relation concerns 'efficient causation,' suggested by Judson (2016). Though all offer readings of the priority relation, they generally leave unaddressed the question of how a priority between *energeia* and *dunamis* can validly follow from a priority relation between eternals and perishables, and what the precise priority relation is between *energeia* and *dunamis* that follows from this first priority. I will be offering a treatment and (ultimate rejection) of the efficient causal reading by Judson later on in the proximate Part, when I address Judson's reading of 1050b6–28, and therefore will address only the former two in this section here.

According to the existentialist reading, X is prior to Y if and only if, if X did not exist, then Y would not exist, but not vice versa. According to the essentialist reading, X is prior to Y if and only if, X makes Y what it is, but not vice versa (Peramatzis, 291). Now, the existentialist reading has its share of problems,[10] but I nevertheless consider it superior to the essentialist reading. For, on Peramatzis's reading, X is prior to Y not only insofar as it factors in to an explanation of what Y is, but more strongly because it is in some way part of Y's essence, and it

[9] Aristotle maintains that this sort of priority at 1050b6–8 is priority 'in a stricter sense' (*kuriôterôs*). It is controversial what Aristotle means by this, and the viability of a given interpretation for the new priority must adequately address this. Unfortunately, due to lack of space, I cannot consider the issue of *kuriôterôs*.

[10] The first set of difficulties for this reading are general difficulties for any sort of existential priority. For these worries, see Fine (1995, 271). Specific to its application to Aristotle, however, are the following worries. First, while it is clear that eternals are responsible for *moving* perishables, it is less certain that eternals are responsible for their *existence* (cf. my fn. 4). And thus its not clear that an *existential* priority amongst eternals and perishables holds on Aristotle's own account. Secondly, and relatedly, as Peramatzis notes (294), the required asymmetry between eternals and perishables does not straightforwardly obtain. For, he notes, since the existence of the sublunar species and elements are necessary in Aristotle's universe, it is not clear that eternals could *in fact* exist in the absence of perishables. I am grateful to Ana Laura Edelhoff for sharing with me her unpublished paper, "Aristotle on the Priority of the Eternal," wherein she raises these points (3–9).

is hard to see how eternals are themselves part of the essence of perishables.[11] [12] Therefore, going forward, I assume the existentialist reading.[13]

Recall that the existentialist reading presented by Beere and Makin is as follows:

X is prior to Y iff, if X did not exist, then Y would not exist, but not vice versa.

Both Beere and Makin apply this principle to the relation between eternals and perishables. Less clear, however, is whether they believe Aristotle intended it to apply to the relation between *energeia* and *dunamis* as well (that is, whether they believed the priority to be 'transitive,' in my language). Whether or not it is transitive has differing implications for the restriction upon *dunameis* in the heavenly spheres. And thus, I will consider each case—that of intransitivity and that of transitivity—in turn. Ultimately, I will suggest that the case of transitivity is more likely, though both are problematic for a possibility of *dunameis* in the heavens.

If the relation is intransitive, the progression from the first sort of priority to the second sort of priority is likely merely that (i) perishable things depend upon eternal things; and (ii) the latter have their substance (*ousia*) as *energeia* while the former have their substance as *dunamis.*[14] And thus, indirectly—mediated by the substances they compose—(iii) *energeia* is prior to *dunamis.*

---

[11] I again thank Edelhoff for sharing the aforementioned draft, wherein she argues this point (10).

[12] Peramatzis himself acknowledges this point (296). He responds that the essentialist about priority need not believe that any eternal is part of the essence of any specific perishable. Rather, the essentialist thinks that eternal, actual being "fixes the generic identity of all sublunary species as species."

[13] It ultimately does not make a difference, from the perspective of the *dunameis* restriction, whether I embrace the existentialist or essentialist readings, as both have the same implications for the restriction.

[14] As I note below (30–35) in my treatment of Judson's reading, Judson (2016) argues that the priority proposed at 1050b6 is priority in *substance* precisely because eternals have their substance as *energeia*, while perishables have their substance as *dunamis* (148). Judson evokes Lambda 6, 1071b12–21, wherein Aristotle distinguishes between substances whose 'substance is *dunamis*' and those whose 'substance is *energeia.*' Makin and Beere, in contrast to Judson, do not stress the '*substance as energeia*' point—that is, they do not maintain that it is eternals having their substance as *energeia* (and perishables as *dunamis*) that 'bridges the gap' at (ii) above from the priority relation between eternals and perishables, on the one hand, to the priority relation between *energeia* and *dunamis*, on the other (Judson does not explicitly argue this as I just stated it either, though it seems to be his reasoning). Rather, Makin and Beere, in their silence on the issue of what fills the link (ii) here, seem to assume that the progression from one priority to the other is something like, 'eternals are in *energeia* without corresponding *dunameis*, while

But could this really be justification for the inference of a priority between *energeia* and *dunamis*? What is striking about such a justification for inferring priority between *dunamis* and *energeia* from the priority between perishables and eternals is that the former are *incidental* features of the latter from the perspective of the latter's priority. If there were something else *x* that all eternals had in common, and something else *y* that all perishables had in common, by this line of reasoning, then *x* would similarly be prior to *y*. And this seems to be a weak way to determine a priority relation between two things. Now, one could respond that having their 'substance as *energeia*/*dunamis*' is not just any feature to have in common—it is not as if, if all eternals were blue and perishables yellow, and eternals prior to perishables, then blue would be prior to yellow.[15] For, Aristotle maintains at Lambda 6 1071b21 that, if eternals are to do the requisite causal work upon the sublunar realm, they must have their substance be *energeia.* And so, one might counter, that eternals have their substance as *energeia* is a *condition* of their maintaining the priority relation with respect to perishables—it is not merely incidental, but is that in virtue of which eternals are prior to perishables—and, so a priority relation between *energeia* and *dunamis* justifiably follows.

But it is a condition, for instance, of the unmoved mover's pure *energeia* (which is a condition of its requisite causal work) that it have only one object of thought and that its object be indivisible (1075a5–8), and thus, by the same reasoning, one object of thought is prior to

---

perishables possess corresponding *dunameis*.' On this (presumed) Makin and Beere reading of (ii), the intransitivity more obviously prohibits the presence of a *dunamis* for motion in the spheres. On Judson's reading, which renders (ii) the 'substance as *energeia/dunamis*' connection—and on the assumption that the substance of the spheres does not include their motion—Judson's intransitivity less clearly prohibits the presence of a *dunamis* for motion.

But, as I note (footnotes 4, 6, 17, 24, 37, 38), I am leaving it an open question whether the 'substance' of the spheres includes their motion, since I consider it an open question whether their motion is essential to them. If their substance *does* include their motion, then Judson's 'substance as *energeia*' reading of (ii) will clearly preclude the possibility of a *dunamis* for motion. If it does not include motion, and if we have a case of intransitivity, the requirement that they lack a *dunamis* for motion less obviously follows on Judson's reading.

[15] Interpretations that do not evoke the '*substance as energeia*' explanation for (ii), like Makin and Beere's, could not afford this reply.

multiple, and indivisible objects of thought are prior to composites[16]—indeed, this reasoning would demonstrate priority for all those features Aristotle believes are required for eternals to perform their requisite causal role. It is therefore over-generating.[17]

Thus, before moving to the case of transitivity, there is reason to think that intransitivity cannot be what Aristotle intended. For, as we saw, the priority relation between *energeia* and *dunamis* is apparently incidental with respect to the priority between eternals and perishables. And this seems to be a tenuous source for a priority relation. And moreover, Aristotle's whole point in 1050b6–28, and in Theta generally, is to enumerate the priority relations between *energeia* and *dunamis, not* between perishables and eternals—the relation between the latter is merely employed at 1050b6–28 to argue for the priority of the former. It would seem striking therefore if the more robust, clearer notion of priority were to be found only in the latter.

Let us, then, consider what the picture would look like in the case of transitivity—that is to say, if an existential priority relation were meant to hold both between eternals and perishables and between *energeia* and *dunamis*. Now, given the structure of Aristotle's inference—that the first priority relation is meant to demonstrate the second—Aristotle must use the existential priority relation between perishables and eternals to show an existential priority relation between *energeia* and *dunamis*, such that it is possible for *energeia* to exist without *dunamis*, but not vice versa. What would need to obtain in order for the former priority to be sufficient for the latter? It would need to be the case, that, if it were true that eternal things could exist without perishable things, then it would be true that *energeia* could exist without *dunamis*. The only picture in

[16] I recognize, that, though 1050b6–28 is likely concerned with the spheres only, the example I just provided concerns the unmoved movers.

[17] Moreover, such an interpretation of (ii)—where the priority between *energeia* and *dunamis* follows because 'substance as *energeia*/*dunamis*' is a condition of the priority between perishables and eternals—would seem to push us towards a wider reading of what the spheres' substance includes. For, if we were to assume, as Judson will, that all that is included in their substance's being in *energeia* is their eternal *existence,* this would render (ii) too narrow, such that the priority between *energeia* and *dunamis* would be even more clearly incidental with respect to that between eternals and perishables.

which this sufficiency holds would be one in which there are *no dunameis in the heavenly spheres*—such that, because there are no *dunameis* amongst eternals, and because eternals can exist without perishables, *energeia* can exist without *dunameis.*

Thus, in both cases of transitivity or intransitivity—though to various extents on the intransitivity picture (cf. fn. 14)—the priority relation necessitates a restriction on the presence of *dunameis* in the spheres.

Let us briefly return to the general structure noted at 1050b6–8:

1. eternal things are prior in substance to perishable things
2. no eternal thing is *dunamei*
3. therefore, *energeia* is prior to *dunamis*

Now, Aristotle spends the remainder of 1050b6–28 attempting to substantiate premise (2), that no eternal thing is *dunamei.* In order to do so, he offers what I will call the 'no *dunamis*' argument at 1050b8–18. In the following section, I will present the standard interpretation of this argument. I will maintain that, though the argument at 10508–18 itself does not support the absence of a *dunamis* for motion, the argument taken in conjunction with the rest of the passage, until 1050b28, indeed necessitates this particular absence.

§2. The argument against *dunamis*

As noted, the argument which proceeds at 1050b8–18 is meant to substantiate claim (2) above, that nothing eternal is *dunamei*, and—since eternals are prior to perishables—thereby enable Aristotle to maintain that *energeia* is prior to *dunamis*.

I will first present the 'no *dunamis'* argument as it has standardly been interpreted, specifically by Makin and Beere. I will then argue that, as rightly noted by Judson (2016), this standard interpretation wrongly extracts a general principle concerning all 'eternally Fs' from the

explicit argument. I will maintain that such a general principle *is* necessitated by the full passage, but we must look beyond the argument at 1050b8–18.

The text containing the 'no *dunamis*' argument, from 1050b6–18, is as follows:

> But [actuality is prior] in a stricter sense also; for eternal things are prior in substance to perishable things, and no eternal thing is potentially. The reason is this. Every potency is at one and the same time a potency of the opposite; for, while that which is not capable of being present in a subject cannot be present, everything that is capable of being may possibly not be actual. That, then, which is capable of being may either be or not be; the same thing, then, is capable both of being and of not being. And that which is capable of not being may possible not be; and that which may possibly not be is perishable, either in the full sense, or in the precise sense in which it is said that it possibly may not be, i.e. in respect either of place or of quantity; 'in the full sense' means 'in respect of substance.' Nothing, then, which is in the full sense imperishable is in the full sense potentially (though there is nothing to prevent its being so in some respect, e.g. of a certain quality or in a certain place); all imperishable things, then, are actually.[18]

Beere and Makin extract the following argument (1–4) from 1050b6–18. When presenting their version of the argument, I will take care to note where I disagree, and indeed, agree.

1. If something is eternally F, then it is imperishable (in respect of F)
2. Anything that is potential (*to dunaton*) may possibly not be (1050b10–11)
3. Thus, if something is potentially F, then it is perishable (in respect of F) (1050b14)
4. Therefore, nothing eternal is potentially (*dunamei*) (1050b8)

I will take each premise in turn. Before acknowledging the scope of the first premise—which is the core controversial point I will dispute—it is important to recognize that, regardless of the scope, concerning (1) it does not straightforwardly follow that a thing's being eternal entails its imperishability, i.e. that it cannot cease to be. For, we might think that something may be eternal in fact, but not necessarily so, such that it is possible it may perish—it simply does not. But we know that Aristotle does indeed make this move in 1050b6–28, since the absence of *dunamis* is

[18] Ἀλλὰ μὴν καὶ κυριωτέρως· τὰ μὲν γὰρ ἀΐδια πρότερα τῇ οὐσίᾳ τῶν φθαρτῶν, ἔστι δ' οὐθὲν δυνάμει ἀΐδιον. λόγος δὲ ὅδε· πᾶσα δύναμις ἅμα τῆς ἀντιφάσεώς ἐστιν· τὸ μὲν γὰρ μὴ δυνατὸν ὑπάρχειν οὐκ ἂν ὑπάρξειεν οὐθενί· τὸ δυνατὸν δὲ πᾶν ἐνδέχεται μὴ ἐνεργεῖν. τὸ ἄρα δυνατὸν εἶναι ἐνδέχεται καὶ εἶναι καὶ μὴ εἶναι· τὸ αὐτὸ ἄρα δυνατὸν καὶ εἶναι καὶ μὴ εἶναι. τὸ δὲ δυνατὸν μὴ εἶναι ἐνδέχεται μὴ εἶναι· τὸ δὲ ἐνδεχόμενον μὴ εἶναι φθαρτόν, ἢ ἁπλῶς, ἢ τοῦτο αὐτὸ ὃ λέγεται ἐνδέχεσθαι μὴ εἶναι, ἢ κατὰ τόπον ἢ κατὰ τὸ[1] ποσὸν ἢ ποιόν· ἁπλῶς δὲ τὸ κατ' οὐσίαν. οὐθὲν ἄρα τῶν ἀφθάρτων ἁπλῶς δυνάμει ἔστιν[2] ἁπλῶς· κατά τι δὲ οὐδὲν κωλύει, οἷον ποιόν, ἢ πού· ἐνεργείᾳ ἄρα πάντα.

first stated as a claim about eternals, and at 1050b16 is restated as a claim about imperishables (cf. Makin, 211).[19] Now, the *scope* of the premise—that it concerns any given F which is eternally the case—is that with which I disagree. I will therefore return to this point after presenting the rest for the argument.

Concerning premise (2), Aristotle tells us that anything which is potential may possibly not be actual. His reasoning for this claim is as follows:

i. If some thing is *dunamei* F, then it has a capacity to be F
ii. "every *dunamis* is at one and the same time a *dunamis* for the opposite" (1050b9)
iii. Thus, if something has a *dunamis* for F, it can fail to realize that *dunamis*, and thereby not be F
iv. Thus, if something is potentially F, it may possibly not be actually F

Claims (i-iv) demonstrate that in 1050b6–28 Aristotle is assuming an entailment between having a capacity (*dunamis*), being able (*dunaton*), and being-in-capacity (*einai dunamei*), such that, if a thing is *dunamei* F, then it has a *dunamis* for F and is *dunaton* with respect to F (cf. Beere, 317).[20] We should also note that the scope of (ii), and of the foregoing i-iv entirely, is indeed general to every *dunamis*— πᾶσα δύναμις ἅμα τῆς ἀντιφάσεώς ἐστιν. Makin and Beere are thus justified in reading a wide scope at *this* point. So, to briefly return to the main argument (1–4) above, while I will argue that premise (1) and the conclusion (4) are too wide in scope, premises (2) and (3) are indeed correct in scope.

Claim (iii) above, Beere and Makin rightly note, represents the fact that, in 1050b6–28, Aristotle is *not* discussing so-called 'two-way capacities,' which entail a capacity for each of two opposites—for instance, the capacity had by someone with medical knowledge to heal entails a

[19] That Aristotle is justified in making this move is supported by his belief that eternals are *necessarily* eternal, in that they cannot be otherwise. See *Top* 2.6 112b1–2; *Cael.* I.12 281b25; *GC* 2.9 335a33–4, 2.11 337b33–338a3; *Meta.* E2 1026b27–30, N2 1088a23–5 (c.f. Makin, 209).
[20] Frey denies the entailment goes the other direction, such that if a thing has a *dunamis,* it is *dunamei* in any sense.

corresponding capacity to harm.[21] If Aristotle *were* discussing such two-way capacities here, we would take him to be saying that, implied by a capacity for some F, is a corresponding capacity for not-F. This, however, is *not* what Aristotle intends at 1050b6–28. As represented by (iii), there is only one capacity, and that capacity may simply fail to be realized, thereby resulting in the absence of what the capacity is for (e.g. the absence of the realization of the capacity for motion is simply *rest*).[22]

The move in the main argument from (2), 'anything that is potential may possibly not be actual,' to (3), 'if something is potentially F, then it is perishable (in respect of F),' is simply that 'to perish' is tantamount to 'no longer being'—i.e. "that which is capable of not being may possibly not be; and that which may possibly not be is perishable" (1050b10–12). So, since anything that is potentially F may possibly not be F, and since, to no longer be (some F) is to be perishable (with respect to F), then to be potentially F is to be perishable with respect to F.

Now, *given* the general scope in (1), as it is represented by Makin and Beere, the general conclusion they represent at (4) necessarily and validly follows. But—and this is where my disagreement with Makin and Beere begins—let us turn to the conclusion as Aristotle explicitly presents it, with preceding lines at 1050b14–18:

> That which is capable of not being may possible not be; and that which may possibly not be is perishable, either in the full sense, or in the precise sense in which it is said that it possibly may not be, i.e. in respect either of place or of quantity; 'in the full sense' means 'in respect of substance.' Nothing, then, which is in the full sense imperishable is in the full sense potentially (though there is nothing to prevent its being so in some respect, e.g. of a certain quality or in a certain place); all imperishable things, then, are actually.

[21] That they are *one*-way capacities will become important when treating Judson's view in the subsequent Part.
[22] Relatedly, in 1050b6–28, Aristotle carefully maneuvers between 'being capable' (*dunaton einai*) and 'being possible' (*endechetai einai*), such that the former entails the latter, but the latter need not imply the former.

Here, we see that Aristotle only explicitly applies his conclusion concerning a restriction of *dunameis* to that which is 'in the full sense' imperishable, i.e. 'in respect of substance.'[23] Aristotle is therefore *not* clearly operating throughout the 'no *dunamis'* argument at 1050b8–18, as it is presented, on some principle, "if eternally F, then no potential for F." Indeed, Aristotle never present the general referent 'eternally F,' but rather introduces the argument as concerned with eternal *things* (*ta aidia*) at 1050b6–7.

Makin maintains that "the distinction at 1050b14–16 between perishability in different respects shows that the point applies both to what exists eternally and what is eternally F for a predicate in a non-substance category" (210). But Aristotle's claim at b14–16 that, "that which may possibly not be is perishable, either in the full sense, or in the precise sense in which it is said that it possibly may not be, i.e. in respect either of place or of quantity" is meant to show the scope of the relation between 'not being' and 'perishability'—something which may not be in all those categories is perishable in all those categories. The distinction at b14–16 is *not* meant to show the scope of the conclusion concerning *dunameis.* And moreover, as just noted, Aristotle immediately thereafter at 16–18 singles out perishability in the 'full sense' as that to which the conclusion applies. This, then, is the scope of the 'no *dunamis*' argument at 1050b8–18.

But while the argument at 1050b8–18 explicitly concerns *dunameis* with respect to imperishability without qualification, Aristotle proceeds in the second half of the passage, from 1050b20–28, to make precisely the analogous claim concerning a *dunamis* with respect to movement.[24] The subsequent text at 105020–28 reads as follows:

[23] C.f. Judson (2016), page 153.
[24] As noted, there is a question as to whether 'imperishability in respect of substance' *already entails* motion, since one might think it is essential to the spheres' being what they are that they move, and thus, a restriction of a *dunamis* for motion would already be required by the argument at 1050b6–18. However, I am leaving it an open question whether such motion is essential. I return to this point when addressing Judson in Part III.

> Nor does eternal movement, if there be such, exist potentially; and if there is an eternal *mobile,* it is not in motion in virtue of a potentiality (*kata dunamin*), except in respect of 'whence' and 'whither' (there is nothing to prevent its having matter which makes it so capable). And so the sun and the stars and the whole heaven are ever active, and there is no fear that they may sometime stand still, as the natural philosophers fear they may. Nor do they tire in this activity; for (*gar*) motion is not for them, as it is for perishable things, connected with the potentiality for opposites, so that the continuity of the movement should be laborious; for it is that kind of substance which is matter and potency, not actuality, that causes this.[25]

Thus, just as we are told that nothing eternal has a capacity to be without qualification, such that they cannot *not* be without qualification (they necessarily *are*), we are told that eternals do not move *kata dunamin*.[26] They do not, in other words, have a corresponding *dunamis* for motion. And Aristotle tells us that, for this reason, there is no fear that they will ever stop.

Now, we might think, if Aristotle's argument at 1050b8–18 did not operate on the principle, 'if eternally some F, then no *dunamis* for F,' then how is he justified in expanding the conclusion from 1050b18 to apply to the case of motion? That is, Aristotle must be operating on some basis for generalization in his expansion to motion at 1050b20. What, then, is this basis?

In order to answer this question, we must turn to the *exception* that Aristotle makes for a *dunamis* for 'whence and whither' (*pothen poi*). Understanding why whence and whither is exempted allows us to gain a sense of what the basis for generalization might be—namely, it must be something that does not apply to the case of 'whence and whither.'

---

[25] οὐδὲ δὴ κίνησις, εἴ τίς ἐστιν ἀΐδιος· οὐδ᾽ εἴ τι κινούμενον ἀΐδιον, οὐκ ἔστι κατὰ δύναμιν κινού- μενον ἀλλ᾽ ἢ πόθεν ποί· τούτου δ᾽ ὕλην οὐδὲν κωλύει ὑπάρχειν. διὸ ἀεὶ ἐνεργεῖ ἥλιος καὶ ἄστρα καὶ ὅλος ὁ οὐρανός, καὶ οὐ φοβερὸν μή ποτε στῇ, ὃ φοβοῦνται οἱ περὶ φύσεως. οὐδὲ κάμνει τοῦτο δρῶντα· οὐ γὰρ περὶ τὴν δύναμιν τῆς ἀντιφάσεως αὐτοῖς, οἷον τοῖς φθαρτοῖς, ἡ κίνησις, ὥστε ἐπί- πονον εἶναι τὴν συνέχειαν τῆς κινήσεως· ἡ γὰρ οὐσία ὕλη καὶ δύναμις οὖσα, οὐκ ἐνέργεια, αἰτία τούτου.

[26] It is critical for the viability of Aristotle's claims in 1050b6–28 that capacity be what Makin calls a 'non-standard modality' (211, xxv). That is, in contrast to 'possibility,' which is a standard modality, simply because someone does something does not mean that they have the *capacity* to do that thing (whereas if someone does something, it must be possible that they do that thing).

§3. The ‘whence and whither’ exception

I will consider two possible explanations for why ‘whence and whither’ (*pothen poi*) is exempted from prohibition against *dunameis*. The first explanation is that the whence and whither is not *necessarily* the case, while the fact of motion is by contrast necessarily the case. The second possibility is that the whence and whither is not *continuously* the case, while the fact of the spheres’ motion is by contrast continuously the case. I will ultimately argue for the latter. But before presenting these possible explanations for why whence and whither is exempted, I will provide an argument for what ‘whence and whither’ is meant designate in the first place.

Interpreters offer two main views on what whence and whither is meant to designate. The first, offered by Makin, is that the capacity for whence and whither is that for the celestial body be in a particular *place* in its rotation—that is, while the spheres moves eternally in a circular motion, a part of it is, at one point in time, in one location, and at another point, in a different location (216). The second, offered by Beere, is that a capacity for whence and whither is a capacity for moving *from here to there*—that is, while at one point in time a part of the sphere is moving from A to B, at another point in time that same part is moving from B to A (319).

In favor of his view, Beere maintains: “The Greek speaks not of being here or there, but of *moving from* here *to* there… The grammar of the sentence clearly still involves the participle ‘moving.’ Thus the idea should not be that the object is in *energeia* here, but in capacity there, but rather it is in *energeia* moving from here to there, but in capacity from there to here” (319, fn. 57). Now, we might think that the presence of the participle ‘moving’ at 1050b20–21 does not necessarily preclude its being a potentiality with respect to place. For, we might think, just as it is possible that a thing may be in motion in virtue of a potentiality for moving from here to there, it is possible that a thing may be in motion in virtue of a potentiality for being in some

place at which it is not currently present. Specifically, the latter sort of potentiality for place is precisely that which obtains when motion is defined as the incomplete, 'constitutive actuality' to be at some end point (what is then in turn the complete, deprivative actuality)—this definition of motion is precisely what Kosman (1969) and Coope (2012) believe Aristotle presents at *Physics* III.1-2. This, however, as I argue elsewhere,[27] is an untenable understanding of motion as it obtains in the heavens, since we might think that motion cannot be anything less than a complete actuality in eternally moving heavens. Moreover, more significantly, by Kosman's definition, locomotion just *is* the incomplete actuality of the potential to be in a (different) place. And thus, if *pothen poi* at 1050b20–21 did indeed concern place, and if we were thereby required to take on Kosman's definition of motion in order to make sense of the *kinoumenon* participle, then Aristotle would be making an exception precisely for the sphere's motion itself, such that there *would* be a *dunamis* for movement—and Aristotle would therefore be contradicting himself in one and the same sentence. Thus, Beere is right to interpret 1050b20–2 as he does, contra Makin.

Now, Aristotle *does* say at Lambda 7 1072b6 that the reason the unmoved mover cannot move is because motion requires that a thing have a capacity for being otherwise in terms of *place*: "in *this* respect it is capable of being otherwise—in place, even if not in substance." And so we might be tempted to think that he intends 'particular place' to be the referent in Theta 8 as well. But reading 1050b20–2 in the way suggested by Beere does not preclude Aristotle's remark in Lambda from being true. For whence and whither at 1050b20–2 is exempted from the *dunamis* prohibition because it either lacks necessity or lacks continuity, and both Beere and Makin's readings qualify as being exempt on either reason. For instance, if the reason is lack of continuity, just as a part of the sphere is moving from here to there at one time and there to here

[27] See Brasher (2017), unpublished draft, "Aristotle's Account of Motion in *Physics* III.1–2."

at another, a part of the sphere is in one place at one time and another place at another. Change in place is thus not the exemption that Aristotle references with *pothen poi* at 1050b20–2.

Let us turn, then, to Aristotle's reason for exempting whence and whither from the *dunamis* prohibition. Makin and Beere presume this reason is a lack of continuity—and indeed, I will maintain that they are correct—but I will first consider an appealing alternative: namely, that *pothen poi* is exempt because it is not *necessarily* the case that the spheres be moving from here to there at one time, and from there to here at another.

This solution is ostensibly appealing, for, precisely when Aristotle transitions from the conclusion of the 'no *dunamis*' argument at 1050b18 to the claim that there can be no *dunamis* for motion at 1050b20, he maintains that "nothing of necessity is *dunamei*" at 1050b19. And thus we might be tempted to think that being of necessity is precisely the basis for generalization from the conclusion at 1050b18 to the case of motion at 1050b20. On such a basis for generalization, while the substance of the spheres and the fact of their circular movement is necessary, 'whence and whither' would be exempted because it is it not *necessarily* the case that some part of the sphere be moving from A to B at a given time, rather than moving from B to A at that time.

There are however two principal problems with this view. The first is that such a basis for generalization, "if F is necessarily the case, then no *dunamis* for F," seems to be over-generating. We might think that, if the spheres' movement is necessary, such that it could not be otherwise, what is to stop the speed or the angle at which the spheres move from being necessary? There would then be no *dunamis* for that speed or for movement at that angle. And indeed, if we were to take the necessity involved here to be a kind of hypothetical necessity—that is, where the spheres must be as they are in order to bring about motion and generation throughout the universe—then surely it is necessary that the sun be moving across the western horizon at certain

times and across the eastern horizon at others. That is to say, then, the 'whence and whither' would itself be necessary. Moreover, unless the basis for generalization were 'if F is necessarily the case *and* eternally the case, then no *dunamis* for F,' we would have a generalization that obtains just as well in the sublunar realm. Suddenly objects would no longer have capacities for those things that make them essentially or necessarily what they are—fire would have no capacity to burn, agricultural crop would have no capacity to be a source of food, etc. And insofar as Aristotle is attempting in 1050b6–28 to draw a contrast between the presence of *dunamis* amongst perishables and the lack thereof amongst eternals, we cannot have a basis for generalization that traverses this boundary.

A second reason to doubt that Aristotle is operating on the principle, 'if necessarily F, then no *dunamis* for F' is that Aristotle goes to great strides, when identifying the positive qualities of the unmoved mover in Lambda 6–10, to avoid just those features that would render it in some way *dunamei*. He stipulates for the it only those activities and objects of thought that would enable the unmoved mover to be pure *energeia.* And we might think, if Aristotle believed that something's being necessarily the case extricated the underlying substance from a corresponding *dunamis*, then he would not go to such great lengths to select only those features for the unmoved mover that do not by themselves implicate a presence of *dunamis*.

I therefore believe that Makin and Beere are right to think that the reason why 'whence and whither' is exempted is that—in contrast to the fact of the spheres' existence and motion—it is not *continuously* eternally the case. Beere thus argues:

> "Consider any two points, A and B, on the path of an object in eternal cyclical motion, the object moves from A to B and from B to A. While it is moving from A to B, it is certainly not moving from B to A, and vice versa…. However it would be intolerable to deny that the object is in capacity moving from B to A, since the object will do so, without first undergoing an intrinsic change that could endow it with a capacity that it now lacks." (319)

Thus, I maintain that there is a corresponding capacity for 'whence and whither' because a given part of the sphere is not continuously moving from A to B along its path.[28] [29]

There are additionally two positive reasons for thinking that Aristotle believed lack of continuity to be the reason for exempting *pothen poi.*

First, at *Physics* VIII.6 259a16, Aristotle seems to think that for something to be properly eternal it must be continuous—that eternality implies continuity. He maintains "For such movement to be eternal it must be continuous, for what constantly exists at all times is as such continuous." And thus, we might think that 'whence and whither' does not even qualify as being eternal, and thus is clearly outside the scope of things to which the *dunamis* restriction might apply in 1050b6–28. Second, Aristotle maintains that circular motion is the only sort of locomotion that can be eternal, precisely because it is the only sort of motion that allows for *continuity*. For motions upwards and downwards would require the moving thing pause in order to change direction. And thus, we should think that something is only truly eternal on Aristotle's conception, and thus only eligible to exist within the scope of the considerations at 1050b8–26, if it is continuously the case.

. . .

I therefore maintain that in Theta 8 1050b6–28, Aristotle contends that the spheres do not have a *dunamis* for motion, and he allows for the presence of *dunamis* only with respect to that

[28] Now, this explanation is also apparently over-generating—e.g. it is eternally and continuously the case that the spheres move at the angle and speed they do—but I believe this over-generation is not fatal. For, unlike in the case of necessity, in this case neither perishables nor the whence and whither itself are implicated.

[29] Judson objects that this explanation for the exemption of 'whence and whither' makes light of Aristotle's notion of topical matter (*hule topike*). He maintains, "the only things not fixed by the sphere's activity are whether a given part is at A or is moving from A to B at say 10 o'clock rather than 2 o'clock. It is very hard to imagine that this is what the exercise of topical matter is supposed to account for" (155). But if we turn to the text in which Aristotle discusses topical matter, this *does* seem to be all that it is. For instance, Aristotle maintains at *Meta* H4 1044b6–8: "In the case of natural but eternal substances another account must be given. For perhaps some have no matter, or not matter of this sort, but only such as can be moved in respect of place."

which is not continuously the case. By 1050b6–28, then, the spheres are necessarily in motion owing to this lack of *dunamis*. And we therefore face the problem of the redundancy of the unmoved mover. In the following Part, I consider two recent attempts by Frey and Judson (2016) to reinterpret 1050b6–28 so as to avoid such a wide restriction against *dunameis*. I will declare the first reading by Frey to be unhelpful towards resolving the redundancy problem. I will maintain that the second reading offered by Judson, though possibly helpful towards resolving this problem, misinterprets the text at 1050b6–28.

III. Against two recent interpretations of 1050b6–28

§1. Frey

It is important to first see how the motivational structure of Frey's account—why he finds a lack of *dunameis* in the heavens to be problematic—differs from my own. For, that Frey views this conclusion as problematic is not a product of a worry about the redundancy of the unmoved mover, but rather a consequence of his worry about a possible conflict with *natures*. On the one hand, the heavens are said to have natures, and such natures, Frey contends, entail the possession of *dunameis*. On the other hand, in accepting the existential interpretation of the priority relation at 1050b6, Frey (rightly) recognizes that such a priority relation apparently necessitates a restriction on the presence of *dunameis* in the heavens. Therefore, the principal tension for Frey is between the apparent consequence of the priority claim that the heavens lack *dunameis*, and the fact that the heavens have natures, which seems to require the presence of *dunameis*.

Frey presents the following resolution. He argues that what is necessary for the priority claim to go through is not that there be no *dunameis*, but that there be no possibility that the heavens may be *dunamei* (93–4). He therefore maintains that there *are* indeed *dunameis* (thus

satisfying the 'nature worry'), but that these *dunameis* are *necessarily exercised* (thus, he believes, satisfying the priority worry).[30] [31] The capacities are not capacities 'for the contrary,' Frey maintains, since they cannot fail to be realized. In other words, then, to apply his view to the specific case of motion, there *would* be a corresponding *dunamis* for motion, but it would be necessarily exercised, such that the heavens are never moving (merely) *dunamei*.[32]

But Frey's solution does little by way of mitigating the question of the unmoved mover's redundancy.[33] Recall that the conflict between the question of a lack of *dunamis* for movement in the heavens and the unmoved mover's causation was that the absence of a *dunamis* seems to leave no 'room' for a need for the unmoved mover. If the heavens lack *dunameis,* they are already in *energeia* necessarily of their own accord—they cannot rest in any case—and thus seem to have no need for any further mover. Now, granted, by Frey's postulation of necessarily realized *dunameis*, there are now *dunameis* in the heavens where there were not before. So, it is ostensibly helpful. But these *dunameis* are immediately rendered ineligible for aiding in the redundancy worry, since, by Frey, they are necessarily realized in virtue of facts entirely independent of the unmoved mover.

---

[30] Frey does not offer independent arguments that there are indeed *dunameis* in the spheres. He only maintains that the priority at 1050b6–28 can go through with necessarily exercised *dunameis*, and thus presupposes that Aristotle considered the heavens to indeed have *dunameis.* (Moreover, I believe, he circularly presupposes the presence of 'capacities' when making claims about such capacities being necessarily exercised, for there is no corresponding use of *dunamis, dunaton, or dunamei* in the texts that he cites when making these claims. See his claims and citations on pages 102, 107, and 108, at least).

[31] But Frey's solution to the conflict between the demands of the priority relation and the presence of *dunameis* fails. If Frey is accepting an existential priority that is transitive, which he indeed seems to be, it is not sufficient that the spheres never be *dunamei*. For, if there are *dunameis* in the spheres, then, that they are in *energeia* presumably *depends* upon the possession of the corresponding *dunamis*. In other words, all Frey has done is postulate a mutual entailment, such that, while the spheres could not be without an *energeia*, they could not be without a *dunamis* either.

[32] I say 'merely' because some interpreters hold that, when a thing is in *energeiai*, insofar as it retains the corresponding capacity it is also simultaneously *dunamei*—as opposed to not being in *energeia* and therefore being 'merely' *dunamei.* Clearly, Frey must not be one of these interpreters, and must maintain the mutual exclusivity of being *energeiai* and being *dunamei.*

[33] We have good reason to reject Frey's account in any case. For instance, contra Frey, Aristotle maintains at 1050b9 that *every* capacity is for the contradictory. However, since I believe Frey's account to be unhelpful towards the question of the unmoved mover's redundancy, I will not offer a treatment of how it may be flawed in itself.

For, Frey maintains that "in the absence of anything to prevent its exercise, a natural, non-rational capacity, is exercised of necessity" (109). And he contends that, in the case of the heavens, there are indeed no such external hindrances (111). Thus, the *dunameis* we are 'granted' by Frey's resolution are necessarily realized, and this necessary realization is exhaustively accounted for by facts about the nature of the bodies themselves and the absence of hindrances in their environment. In other words, heavenly bodies are necessarily in *energeia*, and that they are necessarily in *energeia* is 'taken care of' before we even 'get' to the fact of the unmoved mover's causation. Thus, from the perspective of the redundancy problem, we might as well not have postulated *dunameis* at all.

§2. Judson

Unlike Frey's account, that provided by Judson (2016) is possibly helpful towards the question of the unmoved mover's redundancy. I will address Judson's view in three parts. First, I will address Judson's interpretation of the priority relation in question at 1050b6–28. Second, I will address Judson's reading of the so-called 'no *dunamis*' argument at 1050b8–18. Last, I will address Judson's treatment of Aristotle's subsequent discussion of motion at 1050b20–28.

i. Judson's priority relation

Judson provides an alternative to the existentialist and essentialist readings of the priority in question at 1050b6. He argues for a kind of efficient causal priority, where X is prior to Y iff X efficiently causes Y, but not vice versa (150). In this case, eternal things are prior to perishable things because eternals efficiently cause perishables, such that if eternal things were not, then nothing would change in the sublunar realm, and perishable things as they are familiar to us (i.e. with their particular qualities) would not exist (151). We should note that this reading of the

priority relation has its benefits. For instance, it avoids the worry had by existentialist reading addressed above (fn. 10) that it is unclear whether eternals are indeed responsible for the *existence* of perishables, rather than simply the changes that obtain among them. Judson's reading thus makes the more amenable claim that eternals are responsible for the existence of perishables *as we have come to know them.*

Now, it clear that, on Judson's reading of the priority relation, what I have called 'transitivity' does not obtain. For we certainly would not say that *energeia* efficiently causes *dunamis*. There is thus no direct priority relation between *energeia* and *dunamis* on Judson's reading. Rather, the two relata of the efficient causal priority relation are only eternals and perishables. Any priority relation between *energeia* and *dunamis*, if there is one, is mediated by the efficient causal priority between eternals and perishables. But what sort of priority could such a 'mediated' priority be? It would be something convoluted and qualified, such as, "x is prior to y iff x is the substance of that which is efficiently causally prior to that, the substance of which is y". This is surely an attenuated sense of priority. That there would be no priority between *energeia* and *dunamis*, or that the priority would be a weak, convoluted one, is striking, given that the point of the passage at 1050b6–28 is to reach a conclusion concerning—not the priority between perishables and eternals—but one between *energeia* and *dunamis*. The priority between perishables and eternals is merely a part of the argument for the priority between *energeia* and *dunamis.* But Judson has not given us a sense of this latter priority at all.[34] Judson maintains, "the broad outline of Aristotle's argument at 1050b6–18, on this reading, is as follows:

1. the substance of perishable things is potentiality, but that of eternal things is actuality

[34] What is moreover remarkable about this is that, though Judson does not apply a 'transitivity standard' to his own reading, he presumes its obtaining in the existentialist reading. When discussing this existentialist reading, Judson states, "since eternal things are prior in substance to perishable things, (certain) actualities are prior in substance to perishable things" (150). His acknowledgement that *certain* actualities (presumably those present in eternal things) would thus be prior implies that he recognizes a transitive relation obtaining in the case of existential priority.

2. eternal things are prior to perishable things, because without the former the latter would not be
3. therefore, things whose nature is actuality are prior to things whose substance is potentiality
4. so, actuality is prior to potentiality" (150)

But Judson has given us no understanding of what this new sense of 'priority' is in (3). In other words, he has given us no reason for thinking that (3) follows validly from (1) and (2).

There are three further reasons for rejecting Judson's reading.[35] The first is the mere fact that Judson gives no argument for reading Aristotle's claim at 1050b19–20—"eternal things are primary; for if these things were not, nothing would be"—as expressing an efficient-causal relation, and indeed, such a reference to efficient causation would 'come out of the blue.' Secondly, if 1050b19–20 *were* meant to express a causal relation, we would expect the relata of the conditional to be events, not substances.[36]

Thirdly, Judson's notion of priority possibly requires the absence of a *dunamis* for motion, and is thus arguably incompatible with the reading of 1050b6–28 that he will ultimately give (cf. footnotes 6, 14, 17). For, Judson maintains that the priority in question at 1050b6–28 is priority in *substance* because "[Aristotle] is using the notion of 'the substance of X' to which he appeals in Lambda 6 1071b12–21, where he contrasts substances whose 'substance is *dunamis*' and those whose 'substance is *energeia*'" (148). What, then, does it mean for a thing's substance to be *dunamis* on Judson's rendering? Judson maintains that "a thing's substance is *dunamis* if its being the substance that it is…is an exercise or realization of one or more potentialities, or depends on such an exercise or realization" (148). And thus, conversely, a thing's substance is

[35] Note that my arguments against intransitivity at pages 13–15 and especially fn. 17 apply here as well.
[36] I am grateful again to Edelhoff for sharing the aforementioned draft with me, in which she gives these two reasons for rejecting Judson's account of priority (11).

energeia if being the substance that it is is *not* such a realization. And—though I will not push this point—we might think that it is vital to the spheres being what they are that they *move*.[37]

Having thus rejected Judson's reading of the priority in question at 1050b6–28, let us turn to his reading of the argument against *dunamis* at 1050b6–18.

ii. Judson on the argument against *dunamis*

For Judson, the distinction that Aristotle makes at 1050b14–16 between 'being imperishable in respect of substance,' and 'being imperishable in respect of place, quality, etc.' is critical. For, he (correctly, as I have already argued above) reads the argument against *dunamis* at 1050b8–18 as applying only to the former.[38]

Thus, Judson's reading of the argument is as follows:

A. Eternal things are imperishable [sc. without qualification]
B. So, they cannot be able to fail to be without qualification
C. Having a potentiality for being, or for being F, involves being able to fail to be (or to be F)

[37] I hesitate to push this point because Aristotle apparently denies at *Meta* Z 15 1040a29–33 that the sun's moving is essential to its being the sun. However, there does seem to be some support for thinking that its moving is included in its substance at Lambda 7 1072b4–7. Aristotle maintains that "If something is moved it is capable of being otherwise than it is. Therefore if its actuality is the primary form of spatial motion, then in so far as it is subject to change, in this respect it is capable of being otherwise—in place, *even if not in substance*." Here, what can be otherwise is not the fact of the motion, but the particular *place* in which the given body is; Aristotle then informs us that it 'cannot be otherwise in respect of substance.' Given that being otherwise in respect of place is contrasted with the *energeia* that is the primary motion, we should think that this primary motion is what is then what is designated by 'in respect of substance' shortly thereafter.

Even more convincing, however, is Aristotle's claim at *De Interpretatione* 13 23a21–6, where he appears to maintain that 'being in energeia' presupposes a categorical lack in *dunameis*. Aristotle argues as follows: "it is clear from what has been said that what is of necessity is in accordance with *energeia* (*kat' energeian*); so that, if the eternal things are prior, then also *energeia* is prior to potentiality. Some things (1) are *energeia* without potentiality (e.g. the primary substances), others (2) with potentiality (these are prior by nature but posterior in time); and others (3) are never *energeia* but only potentialities." The foregoing thus seems to suggest that being in *energeia* presupposes a categorical lack of *dunameis*. Judson might reply that when the foregoing divides 'being in *energeia/dunamis*' into three categories, it is only 'existence' which is concerned at each of the categories. But this limitation to existence would not make sense in cases (2) and (3), which demand the more general 'potentially/actually F.' If existence were the (only) sort of *energeia*/*dunamis* in question here, then the third case—"and others are never *energeiai* but only potentialities"—would be incoherent, since there would be nothing in this third group but nonexistent things.

[38] We might again raise the point here that the spheres' moving is vital to its being the substance that it is. And thus, being imperishable in respect of substance includes being imperishable in respect of *motion*, such that, we might think, it is already entailed by the argument at 1050b8–18 that the spheres can have no *dunamis* for motion. As I have discussed, however, I want to leave this an open question.

D. So, they cannot have a potentiality to be[39]
E. So, their being—unlike that of perishable things—is not the exercise of a potentiality

I have maintained already that I largely agree with this rendering, contra Beere and Makin. Let us turn to Judson's treatment of the rest of the passage, 1050b20–28, with which I will disagree.

iii. Judson on 1050b20–28

Let us revisit the text at 1050b20–28:

> Nor does eternal movement, if there be such, exist potentially; and if there is an eternal *mobile,* it is not in motion in virtue of a potentiality (*kata dunamin*), except in respect of 'whence' and 'whither' (there is nothing to prevent its having matter which makes it so capable). And so the sun and the stars and the whole heaven are ever active, and there is no fear that they may sometime stand still, as the natural philosophers fear they may. Nor do they tire in this activity; for (*gar*) motion is not for them, as it is for perishable things, connected with the potentiality for opposites, so that the continuity of the movement should be laborious; for it is that kind of substance which is matter and potency, not actuality, that causes this.

I have maintained that, in this second part of the passage, Aristotle argues that the motion of the spheres is not the result of a corresponding *dunamis,* and that this is why, via the general premise at 1050b8–9 concerning all potentialities and their contraries, the spheres do not 'tire' in their motion. Now, Judson reasons that, instead, we can read 1050b20–28 as contrasting 'topical' potentiality with existential potentiality, insofar as, he claims, the whole of 1050b6–28 is meant to emphasize a distinction between topical matter, on the one hand, and the generable matter of sublunar things, on the other: namely that, while the latter has a potential both to exist and to move, the former only has a potential to move. And Judson reasons that the *explanans* for the fact that the heavens never tire in their motion is not that they lack a capacity for motion, but that they do not have generable matter, and are always acted on by an unmoved mover (155–57).

[39] Judson leaves "be" ambiguous here, but he must take it to mean 'exist' if he is restricting 'imperishability in substance' so as not to include motion.

But such a reference to the causation of the unmoved mover would come completely out of the blue in Theta 8. And moreover, Aristotle himself *gives us* the *explanans*. He tells us "Nor do they tire in this activity; *for* (*gar*) motion is not for them, as it is for perishable things, connected with the potentiality for opposites." That is, the *reason* why the heavens do not tire is that they do not have a *dunamis* for motion.

Now, Judson might respond that, in fact, the explicit reason Aristotle gives us following *gar* is rather that motion is not connected with a potentiality *for opposites*. Judson thus might maintain that here Aristotle is simply saying that the reason the spheres cannot rest is that capacity in the case of motion cannot fail to be actualized (it is, rather, perhaps, necessarily actualized). But there are two ready responses to this. First, as we know, Aristotle maintains at 1050b8–9 that '*every dunamis* is at one and the same time a *dunamis* for the opposite,' and thus, by this general claim, to say that something does not have a *dunamis* for the opposite is simply to say that it does not have the *dunamis simpliciter*. Secondly, Aristotle *explicitly says* at 1050b20–22 that eternal motion is not in accordance with a capacity (*kata dunamin*).

There is thus a striking similarity between the *explanans* for the fact that the heavens never cease their motion—i.e. that they lack a corresponding *dunamis*—and the *explanans* given at 1050b6–18 for a thing's being imperishable without qualification—i.e. that it lacks the corresponding *dunamis*. It would therefore be an equally striking coincidence if Aristotle did not intend to make a parallel point with respect to the sphere's motion at 1050b20–8.

I therefore maintain that Judson's attempt to read 1050b6–28 as allowing for a *dunamis* for motion fails.

§3. Addressing some considerations against my reading

Having offered treatments of the readings by Frey and Judson, in this section I will address three possible reasons for thinking that Aristotle must permit *dunameis* amongst eternals that have not yet been discussed.

A first reason for thinking that Aristotle cannot deny *dunameis* in the way I have argued is that, at Lambda 1073a5–7 (and *Phys.* VIII.10 267b17–29), as part of an argument that the unmoved mover can have no magnitude, Aristotle contends that the unmoved mover possesses an "infinite potentiality" (*dunamin apeiron*), and since something with finite magnitude could not accommodate such an infinite potentiality—and Aristotle considers infinite magnitude to be impossible—the unmoved mover cannot have any magnitude.[40] This seems to suggest that eternals *do* possess *dunameis*, and that, moreover, they possess an *infinite dunamis.* My response is simply that here Aristotle is having *dunamis* play a sort of metonymous role, whereby it is standing in for something like 'the fact that they do *x* infinitely.' Here, then, to say that a finite substance cannot have an infinite potentiality for some *x* is simply to say that a finite substance cannot do *x* infinitely.

A second reason for thinking that Aristotle must allow for a *dunamis* for motion is provided by Judson (2016). He maintains that the interpretation I have embraced for why *pothen poi* is exempted "does not seem to address the fundamental problem. If the heavenly body's *motion* is not the exercise of a potentiality, what role is left for the exercise of a potentiality to be moving from A to B or to be in this or that location" (155). That is, if there is no *dunamis* for motion, such that the spheres are moving in either case, what sense can we make of a *dunamis* to

[40] Aristotle also refers at *De Caelo* I.12 281b29–32 and 283a7–10 to a potentiality to exist for an infinite time (cf. Makin, 210).

be moving from here to there? For Judson, to deny a *dunamis* for motion *simpliciter* is to render a further *dunamis* to be moving from A to B nonsensical.

I want to address Judson's concern by first posing an additional concern surrounding the whence and whither exemption.

As we have seen, Aristotle maintains that the heavenly bodies do not tire in their activity, and explains this as follows:

> Nor do they tire in this activity; for (*gar*) motion is not for them, as it is for perishable things, connected with the potentiality for opposites, so that the continuity of the movement should be laborious; for it is that kind of substance which is matter and potency, not actuality, that causes this. (1050b24–28)

That is to say, a thing tires with respect to some *x* precisely because it has a *dunamis* for that *x*. And so we might wonder, if the spheres have a *dunamis* for the whence and whither, then why would should they not tire in *that* respect? (cf. Judson, 2016, 157). It seems that, if there is a *dunamis* for whence and whither over and above what would otherwise be covered by a *dunamis* for motion *simpliciter*, then the heavens will tire in respect of the whence and whither. This seems to pull in favor of Judson's view that we cannot pull apart the *dunamis* for 'whence and whither' from the *dunamis* for motion *simpliciter*.

I want to respond now (to both of the foregoing problems) by using two of Judson's own 'moves' against him.

First, as we have seen, Judson considers it nonsensical for there to be a genuine *dunamis* for whence and whither beyond what would be covered by a *dunamis* for motion *simpliciter*. Now, a straightforward reply to this is that the *dunamis* for whence and whither simply is *not* a genuine *dunamis*, and that, rather, it is a *dunamis* by homonymy—that, in other words, there are two sorts of *dunameis* here. One is more clearly a capacity—i.e. that concerning motion *simpliciter*—and the second concerning 'whence and whither' is something like, 'what it is not

doing now but will be doing.'[41] Such a response, which evokes a distinction between two different sorts of *dunameis*, would also address the second concern of why the *dunamis* for whence and whither would somehow be exempt from the spheres' tiring in that respect. For we might think that, in contrast to a *dunamis* for motion, a *dunamis* for whence and whither is not what 'keeps the thing going,' and is thus not eligible to be the sort of *dunamis* that might tire.

There is again a second move against Judson. This is to point out that Judson evokes Aristotle's distinction between topical matter and generable matter. And that, in order for it to be the case that the topical matter (which for Judson includes the *dunameis* for whence and whither *and* motion simpliciter) does not cause the spheres to tire—since Aristotle maintains that the spheres do not tire in respect of motion—Judson must maintain that topical matter is not the *sort* of matter to bring about tiring, and thus, that the *dunameis* in accordance with topical matter are not the sort of *dunameis* to tire (156–7).[42] And we should think that we are therefore entitled to make just the parallel move as Judson: that is, to distinguish between those sorts of *dunameis* that tire and those that do not. This is a distinction, which, moreover, in turn substantiates my reply to the first problem—that the *dunamis* for motion and the *dunamis* for whence and whither are simply not the same sorts of *dunameis,* but are perhaps merely homonymously related.

I therefore maintain that my reading of 1050b6–28 holds.

IV. The need for a new solution

I have argued that Aristotle denies the possibility of a *dunamis* for motion in the heavens. We must therefore search for an alternative solution to the redundancy of the unmoved mover, one

[41] This way of expressing a *dunamis* for x—i.e. *x* is what the substance is not doing now but will be doing—is indeed how Beere seems to cash out the *dunamis* for whence and whither (319, cited above on my page 26).

[42] Indeed, Judson's reinterpreted paraphrase of 1050b20–28 gives two explanations for why the spheres do not tire in their motion (156–7). The first, as I noted above, is that the spheres do not tire because they are eternally moved by the unmoved mover. The second offered by Judson is that they do not tire in their motion because the corresponding capacity to move comes from *topical* matter, as opposed to generable matter (with the implied inference being that it is only the latter which bring about tiring).

which can render compatible the absence of a *dunamis* for motion with the fact of the unmoved mover's causal efficacy. In this Part, I sketch two possible solutions and note their problems.

§1. Exceptional efficient causation

We might think that the sort of efficient causation that obtains in the celestial spheres simply does not require the kind of actualization process that obtains in the sublunar realm. And thus, does not presuppose the presence of a *dunamis* that is to be actualized.

That is, we have been operating under the assumption that 'being moved' must entail a potentiality to move, which is in turn actualized when the thing is moved. But we might think that, for those things which have no potentiality to move (the heavens), efficient causation works differently. We might think, *because* they have no capacity, when motion is 'bestowed' upon them, no actualization process obtains (cf. Judson, 2016, 143). The sphere is indeed 'moved,' but nothing latent within it is 'actualized' when this happens. Here, we would need to accept the claim that an 'actualization' is not required by a thing's 'being moved.' Now, there would indeed need to be a kind of 'rendering different' that obtains when a thing is moved, since to be moved is precisely to undergo a change from not *x* to *x* . But we would want to say that such 'rendering different' does not presuppose an actualization process whereby a *dunamis* is realized.

Now, one might certainly object that, to say that such a 'rendering different' does not entail a corresponding 'making actual' is to violate Aristotle's general metaphysical structure of there being underlying *dunameis* in change—what had enabled Aristotle to respond to the Eleatic challenge on the impossibility of change (See *Physics* I 8 191b27–28). But such a metaphysics of underlying capacities has already been 'violated' by Aristotle himself when he allows for eternals to be in *energeia* without any corresponding *dunamis*. And so, if eternals are unique in

their lacking capacities, we may be justified in claiming that eternals are similarly unique concerning the presupposition of such capacities in change.

§2. Final causation and the celestial souls

A second possible solution is to maintain that the unmoved mover acts primarily as a final cause, and only as an efficient cause insofar as it is final. For, we might argue that it is the souls of the spheres that are directly responsible for the spheres' motion, and that these souls maintain a constant compulsion to move. Further, we might argue that they move precisely out of love for the unmoved mover, which inspires their motion.[43] This solution is appealing, since it ostensibly allocates self-sufficiency to the spheres with respect to their motion, while nevertheless retaining the unmoved mover as necessary for that motion.

There are two problems with this, the second of which is applicable to the former 'exceptional efficient causation' solution as well, and is, I believe, uniquely insurmountable.

First, we should recognize that, by Aristotle's understanding of self-motion, the self-moving substance consists in two parts: an unmoved part—what is assumed to be the soul—and a moved part that is moved by this unmoved part. Thus, by Aristotle's definition of self-motion, the spheres do not simply move (intransitive), as Plato's self-movers might, but *are moved* by an unmoved part within them. Though their efficient cause is now no longer external, Aristotelian self-movers nevertheless seem to undergo the same sort of efficient causal process—which is, incidentally, internal to them. This second solution, if it is to be a viable solution, therefore requires the first solution discussed above. That is, since efficient causation obtains in this solution just as in the last, we must maintain an exceptional understanding of efficient causation

[43] In an unpublished draft of Ana Laura Edelhoff's paper, "Aristotle on Necessary Activities and Capacities in the Metaphysics and the Physics," Edelhoff briefly sketches such a view and indicates that Sarah Broadie first shared it with her in personal correspondence (18 and fn. 59).

in the heavens that does not presuppose an actualization process whereby a *dunamis* is rendered actual. Thus, the strength of this second solution is contingent upon the strength of the first. Insofar as we accept the first, however, this is no problem for the second solution.

Now, the second problem I will raise applies to both this solution and the previous, and I suspect that it is ultimately insurmountable. And this is the fact that, on both interpretations, if there were no unmoved mover, the spheres *would not otherwise* be in motion. For, in the first case, the spheres would lose the efficient cause of their motion. And in the second case, the souls would have nothing after which to lust (and thus nothing to inspire their motion). But the absence of a *dunamis* for motion required by 1050b6–28 seems precisely to say that the spheres are necessarily in motion—that, when taken in isolation, they would still move, and thus, they *would* otherwise be in motion. These two points appear to be in direct contradiction.

V. Conclusion

Aristotle repeatedly maintains that the heavenly spheres are moved by an unmoved mover. And yet it seems that, if Aristotle claims in *Metaphysics* Theta 8 that the heavenly spheres have no *dunamis* for motion, the spheres are necessarily in motion. And thus, if the spheres are necessarily in motion in virtue of a fact about themselves (i.e. their lack of *dunamis*), there is no 'room' for them to require a further mover. I have argued that, on a faithful reading of Theta 8 1050b6–28, Aristotle indeed maintains that there is no such *dunamis* for motion in the spheres. And I have shown that Judson's and Frey's attempts to read 1050b6–28 as allowing for such a *dunamis* fail. I contended that we must therefore look elsewhere if we are to hope to resolve the redundancy problem. We must find a solution that can reconcile a lack of *dunamis* for motion, on the one hand, with the fact of the spheres' being moved, on the other. I proposed two possible ways of doing so. But on both possibilities—and whether the causation of the unmoved mover

was efficient or final—it remained the case that, if there *were* no unmoved mover, the spheres would not move. But to say that the spheres lack a *dunamis* for motion is simply to say that, on the contrary, they *would* otherwise move. And I believe that there is no clear response to this final inconsistency. The redundancy of the unmoved mover, therefore, remains in question.

Bibliography

Aristotle, Cornford, Francis Macdonald, and Wicksteed, Philip H. *The Physics*. Heinemann; Harvard University Press, 1952.

Aristotle, and Guthrie, W. K. C. *On the Heavens*. Heinemann; Harvard University Press, 1939.

Aristotle, and Ross, W. D. *Metaphysica*. Clarendon Press, 1928.

Aristotle, and Ross, W. D. *[Aristotelous Ta Meta Ta Physika] = Aristotle's Metaphysics: a Revised Text*. Clarendon Press, 1924.

Beere, Jonathan B. *Doing and Being: an Interpretation of Aristotle's Metaphysics Theta*. Oxford University Press, 2012.

Berti, Enrico. "*Metaphysics* Lambda 6." *Aristotle's Metaphysics Lambda*, edited by Michael Frede and David Charles, Oxford University Press, 2000, pp. 181–206.

Bodnar, Istvan. "Movers and Elemental Motions in Aristotle." *Oxford Studies in Ancient Philosophy*, edited by C. C. W. Taylor, vol. XV, Clarendon Press, 1997, pp. 81–117.

Broadie, Sarah. "What Does Aristotle Prime-Mover Do - Notes On The Theology In Book Lambda Of His 'Metaphysica'." *Revue Philosophique De La France Et De L Etranger*, vol. 118, no. 2, 1993, pp. 375–411.

Coope, Ursula. "Change and Its Relation to Actuality and Potentiality." *A Companion to Aristotle,* edited by Georgios Anagnostopoulos, Wiley-Blackwell, 2009, pp. 277–291.

Edelhoff, Ana Laura. (Manuscript), "Aristotle on the Priority of the Eternal."

Edelhoff, Ana Laura (Manuscript) "Aristotle on Necessary Activities and Capacities in the Metaphysics and the Physics."

Fine, Kit. "Ontological Dependence." *Proceedings of the Aristotelian Society*, vol. 95, 1995,

pp. 269–290.

Frey, Christopher. “Capacities and the Eternal in Metaphysics Θ.8 and De Caelo.” *Phronesis*, vol. 60, no. 1, 2015, pp. 88–126.

Judson, Lindsay. “Aristotle, Metaphysics Θ.8, 1050b6-28.” *Phronesis*, vol. 61, no. 2, 2016, pp. 142–159.

Judson, Lindsay, “Heavenly Motion and the Unmoved Mover.” *Self-Motion*, edited by Mary Louise Gill and James G. Lennox, Princeton University Press, 1994, pp. 155–171.

Kahn, Charles. “The Place of the Prime Mover in Aristotle's Teleology.” *Aristotle on Nature and Living Things*, edited by Allan Gotthelf, Mathesis, 1985, pp. 183–305.

Kosman, L.A. “Aristotle's Definition of Motion.” *Phronesis*, vol. 14, no. 1, 1969, pp. 40–62.

Kosman, L.A. “Aristotle’s Prime Mover.” *Self-Motion*, edited by Mary Louise Gill and James G. Lennox, Princeton University Press, 1994, pp. 135–153.

Lear, Jonathan. *Aristotle: the Desire to Understand*. Cambridge University Press, 1988.

Malink, Marko. “Reply to Bronstein, Leunissen, and Beere.” *Philosophy and Phenomenological Research*, vol. XC, no. 3, 2015, pp. 748–762.

Makin, Stephen. *Metaphysics. Book [Theta]*. Clarendon, 2006.

Menn, Stephen. “Aristotle’s Theology.” *The Oxford Handbook of Aristotle*, edited by Christopher Shields, Oxford University Press, 2012, pp. 422–464.

Miller, Fred D. “Aristotle’s Divine Cause.” *Aristotle on Method and Metaphysics*, edited by Edward Feser, Palgrave Macmillan, 2013, pp. 277–298.

Peramatzis, Michail M. *Priority in Aristotle's Metaphysics*. Oxford University Press, 2011.