What Underlies the Change from Potentiality to Possibility? A Select History of the Theory Matter from Aristotle to Avicenna

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Abstract: One of the most fundamental notions in the thought of Aristotle is the distinction between actuality and potentiality, which Aristotle links with the equally fundamental distinction between form and matter respectively. According to Aristotle, form, which brings with it actuality, and matter, which brings with it potentiality, are eternal and as such necessary. Consequently, on Aristotle’s view, neither form nor matter needs an efficient cause for its existence. Later thinkers—both in the Greek Neoplatonic tradition and Arabic falsafa tradition—believed that in fact form and matter, while being eternal, nonetheless did have an efficient cause, namely, God. In order to maintain this belief, however, these later thinkers needed to respond to certain arguments that Aristotle had presented, which identified existing for all time with being necessary, while anything that has an efficient cause is merely possible and so does not exist for all time. After briefly outlining developments in the late Greek-speaking world surrounding this issue concerning God’s causal relation to eternal forms and matter, I shall consider two theories presented in the Arabic-speaking world: first that of Abu Bishr Matta and second that of Avicenna and his criticism of Abu Bishr. What primarily sets Avicenna apart from other thinkers is that he closely links possibility (rather than potentiality) with matter. While this shift might seem small it opens up for Avicenna a whole new array of options that were not available to earlier philosophers.


While potentiality and possibility might seem like near synonyms today, historically there have been reasons to question this close association. For example, in Aristotle’s Physics he essentially associated matter with potentiality, and argues that matter as what is potential must

exist eternally.\(^1\) In contrast, in the *De caelo* he analyzed possibility in terms of existing at some time and not at others, and so what is possible never exists eternally.\(^2\) While in his *Metaphysics* Aristotle concedes that there is a sense in which possibility involves potentiality,\(^3\) a linking of these two concepts does not seem to have been established until perhaps as late as the medieval Arabic philosopher, Avicenna in around 1000 CE. I suggest this late dating for when potentiality and possibility became closely associated because the apparent differences between these two concepts would play a central role in one of the most important questions in the ancient and early medieval period, namely, “How could God be causally related to an eternal world?”

In this paper, I consider how several seemingly different physical and metaphysical issues came together to transform Aristotle’s conception of matter as that which underlies natural substances as their potentiality into Avicenna’s theory that matter is what bears possibility and explains the real existence of possibility in the physical world. I begin with Aristotle theory of natural change and the place of matter in it as well as an argument for the age of the world, after which I turn to Aristotle’s analysis of possibility and necessity in his *De caelo*. Aristotle’s analysis of necessity and possibility raised the question of how God could be the efficient cause of an eternally existing world, which arguably was the most pressing question for several Greek Neoplatonic philosophers such as Proclus, Ammonius and John Philoponus. The question of God’s causal relation to an eternal effect, however, was apparently not answered satisfactorily in the late antique period, and thus continued to present a serious challenge to thinkers working in the Arabic-speaking world. In the last two sections of this paper, I consider the arguments of two such thinkers to resolves this issue of God’s causal relation to the

\(^1\) Aristotle, *Physics*, VIII I, 251a8-b10.

\(^2\) Aristotle, *De Caelo*, I 11-12.

\(^3\) Aristotle, *Metaphysics*, V 12, 1019b35ff,
world, namely, that of the Christian, Arabic-speaking philosophers, Abu Bishr Matta (d. 940), and then Avicenna (980-1037). I shall argue that Avicenna’s identification of potentiality and possibility opened up for him a whole new array of options concerning the issues of the age of the world, God’s causal relation to the world and even the nature of possibility itself, which were simply not available to earlier philosophers.

I. Aristotle

At *Physics* I 7, Aristotle famously analyzed generation or coming to be (*genesis*) in terms of three principles: (1) an underlying thing (*hupokeimenon*), or matter, (2) a certain privation in that underlying thing corresponding with the absence of some form, and finally (3) form.\(^4\) So for example, if a quantity of water comes to be hot, there must be the water, which is the underlying thing that undergoes the change, an initial privation or absence of heat (for if the water were already hot it could not become hot) and finally the form, that is to say, the heat that comes to be in the water.

Already in this analysis of coming to be, we see the basis for one of Aristotle’s arguments that the world has always existed into the infinite past, that is to say that it is eternal. The argument runs as follows:\(^5\) the world itself is a composite of matter and forms. Thus if there were some time at which the world ever came to exist after not existing, matter and forms would have come to exist after not existing; however, as we have already seen for Aristotle every instance of coming to be requires an underlying thing that undergoes the change, namely, the matter, as well as the forms that come to be and pass away. Hence, in order for matter and forms to come to exist, matter and forms would already have had to

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\(^4\) See 190a13ff.

\(^5\) Aristotle, *Physics*, VIII I, 251a8-b10, where the argument is in terms of *that which is capable of undergoing motion*, namely, matter. Also see *Metaphysics*, VII 7-8.
exist, which is clearly a contradiction. Thus, the initial assumption, namely, there was a time at which the world came to exist after not existing, must be false. Therefore concludes Aristotle the world has existed eternally.

Given that for Aristotle the world as a form-matter composite is eternal, he thought its existence must likewise be necessary and so in no need of an efficient cause for its existence. This point is stated most clearly in the *De caelo* (I 11-12) where Aristotle challenges the position of Speusippus and Xenocrates, Plato’s immediate successors at the Academy; for they had argued that the demiurge of Plato’s *Timaeus* stood in a causal, rather than temporal, relation to the world.⁶ On their interpretation of Plato the world is generated in the sense of being dependent upon the demiurge as upon an efficient cause, and yet according to these thinkers the world is nonetheless eternal. Aristotle’s objection to this suggestion begins by distinguishing various senses of “generable/ungenerable” (*Grk*, *genēton/agenēton*) and “perishable/imperishable,” (*phtharton/aphtharton*), where Aristotle takes the most basic sense of these terms to refer to “possibility” and “impossibility” (*dunaton/adunaton*); for only if something is possible will it be capable of generation. He next appealed to temporal frequencies in order to explain the modal terms, “necessity,” “possibility” and “impossibility.” More specifically, according to Aristotle, if something exists for *all time*, it is necessary; if it exists at *some time*, but not at another time, it is possible; and if it exists at *no time* ever, it is impossible. Based upon this analysis of modalities, Aristotle, then, argued against the thesis that something could be generable and yet eternal. The details need not bother us, since his general move is relatively simple: if something is generable, and so causally dependent upon another as its efficient cause, then its existence must be possible; however, if it is possible, then, given the temporal

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⁶ See Aristotle’s doxography at *De caelo*, I 10.
frequency account of possibility just sketched, there is a time when it
does not exist. Clearly if there is a time when it does not exist, then that
thing is not eternal. Hence, Aristotle concluded whatever is dependent
upon an efficient cause and so generated cannot be eternal. Therefore,
Speusippus and Xenocrates must be wrong in their claim that God (or
the demiurge) is the efficient cause of the eternal existence of the world.
For Aristotle, then, God (or more exactly the unmoved mover) is not an
efficient cause of the world’s existence in any way; rather, God is only a
final cause, namely, the object of desire that an eternal world through its
perpetual motion strives to be like.7

II. Later Developments in the Greek World

Certainly by the time of the Neoplatonist philosopher, Proclus
(412-485 C.E.), there was discontent with this Aristotelian position; for in
Proclus’ commentary on the Timaeus, he complained: “the Peripatetics
say there is something separate [from the physical world]; it is not an
efficient (poiēticon), but final (telikon) [cause]. Hence [the Peripatetics]
both removed the paradigms and set a wholly simply intelligence over all
things.”8 For Proclus it was not enough, then, that God was the final
cause of the universe, one must likewise show that God was the efficient
cause of the universe’s existence.

While Proclus disagreed with Aristotle on God’s causal relation to the
world, he wholly agreed with him that the world is eternal;9 for argued Proclus if
God is the efficient cause of the existence of the world, then should one assume

7 See Aristotle, Metaphysics, XII 7, 1072a19ff.
8 Proclus, Procli in Platonis Timaeum commentaria, ed. E. Diehl, 3 vols. (Leipzig:
Teubner, 1903-6), vol. 1, 266.28-268.24.
9 See Proclus, On the Eternity of the World (de Aeternitate mundi), ed. and trans.
Helen S. Lang and A. D. Macro (Berkeley, CA: University of California Press,
2001).
that there were a time that the world did not exist and then later did exist, there
must have been a change in God, since God would have changed from not
causing the existence of the world to causing it. Such a view was sacrilegious to
Proclus, since it negated divine immutability as well as suggested that some cause
might act on God so as to bring about a change in Him.\footnote{See Proclus, “Argument 1,” \textit{On the Eternity of the World}, \textit{op. cit.}}

Given that Proclus wanted to make God both the efficient cause
of the world’s existence and to make the world’s existence eternal, he was
directly faced with the argument of Aristotle’s \textit{De caelo}, which again is that
the world could not be both eternal and the effect of an efficient cause.
Perhaps in an attempt to disentwine Aristotle’s temporal frequency
model of modalities from the issues of God’s causality and the cosmos’
eternity, Proclus distinguished between what is generated (\textit{genēton})—the
language of \textit{De caelo}—and what is causally dependent (\textit{gignomenon}), as
well as distinguishing between possibility (\textit{dunaton})—again the language
of \textit{De caelo}—and potentiality (\textit{dunamis}). Once making these distinctions,
Proclus could, on the one hand, follow Aristotle and understand \textit{genēton}
in terms of possibility, again explained by reference to temporal
frequencies, that is, something is possible if at one time it did not exist
and then at some time does exist. Consequently, he reads the conclusion
of \textit{De Caelo} not in the robust sense that whatever depends upon an
efficient cause cannot be eternal, but in the innocuous sense that
whatever comes to be in time, cannot be eternal. On the other hand,
Proclus treats the notion of ‘causal dependency’ (\textit{gignomenon}) as an
expression that is more general than \textit{genēton}; for what is \textit{gignomenon},
according to Proclus, may be generated eternally or at some moment in
time. What is interesting for our purposes is that Proclus does not
explain causal dependency in terms of ‘possibility’ as Aristotle had done,
but in terms of ‘potentiality,’ the term Aristotle linked to matter in both
his *Physics* and *Metaphysics*. Since Proclus as well as Aristotle associates potentiality with matter, and matter for both is eternal, nothing in principle precludes something that is causally dependent from also being eternal. In effect, what Proclus had done was reinterpret Aristotle at least so as to give the appearance that Aristotle was not opposed to God’s being the efficient cause of the world’s existence.

Once this new reading of Aristotle was in place it was not long until Neoplatonic commentators of Aristotle began arguing that despite what earlier commentators had thought, Aristotle himself had held that God was the efficient cause of the very existence of the world. Indeed, it was Proclus’ own student, Ammonius (ca. 440-520), who first began to read Aristotle in this light.\(^\text{11}\) While the work in which Ammonius attempts this project is now lost, we do know from various Greek and Arabic sources that Ammonius’ interpretation of Aristotle drew primarily (if not exclusively) on Aristotle’s *Metaphysics* in which there is no attempt to explain modalities in terms of temporal frequencies, but rather the modal notions of necessity (*anangkē*), possibility (*dunaton*) and contingency (*endechomenon*) are happily defined in terms of one another.\(^\text{12}\) Thus in Ammonius, the arguments of Aristotle’s *De caelo* and the theory of modalities that underlay them would seemed quietly to have disappeared, and a reconciliation of the Platonic doctrine that God is the efficient cause of the world’s existence and the Aristotelian doctrine of the world’s eternity seemed imminent.

The fact is Aristotle’s temporal frequency model for analyzing modalities never fully disappeared; for while it may have fallen out of favor among certain metaphysicians, it never wholly lost its appeal among

\(^{11}\) For Ammonius’ influence in the Arabic-speaking world see Amos Bertolacci, *The Reception of Aristotle’s Metaphysics in Avicenna’s Kitāb al-Šifā’, A Milestone of Western Metaphysical Thought* (Leiden: E.J. Brill, 2006), ch. 3.

\(^{12}\) See for example Aristotle, *Metaphysics*, V 5, 1015a34; V 12, 1019b27-29.
natural philosophers. That is because the temporal frequency model allowed them to reduce the rather opaque notions of natural necessity, possibility and impossibility to the relatively transparent notion of time; for time, Aristotle had shown, was simply a certain measure of motion, while motion simply is the actuality of potential as such, where “actuality” and “potentiality” are for the natural philosopher perhaps to two most basic notions in physics. In short, reducing modalities to temporal frequencies explained what ultimately grounded them in the physical world, namely, in the act/potency relations that make up the world itself.

It was because the temporal frequency model of modalities never did truly die away that Ammonius’ own student, the Christian philosopher, John Philoponus (490-570), could resurrect Aristotle’s De caelo arguments, but now use them to argue against the Aristotelian thesis that the world’s existence is eternal. Philoponus argued that if the universe were eternal, then given the standard temporal frequency model of modalities, it must exist necessarily, but if something’s existence is itself necessary it hardly seems to be the sort of thing that is causally dependent upon another as an efficient cause. Since most philosophers working in the medieval Arabic-speaking world wanted to make God the efficient cause of the world’s existence and yet also held that the world’s existence is eternal, Philoponus’ recasting of Aristotle’s argument presented a formidable challenge.

III. Abu Bishr and Philoponus’ Challenge

One of the earliest Arabic-speaking philosophers to rise to this challenge was the Baghdad Christian philosopher Abu Bishr Matta. Although we have only fragments of Abu Bishr’s *Metaphysics* commentary, where he explicitly argued that God is the efficient cause of the world’s eternal existence, large sections of his *Physics* commentary are extant, and there is sufficient material to allow for a tentative reconstruction of his argument.\(^{14}\) Commenting on Aristotle’s account of natural necessity in book II of the *Physics*, Abu Bishr remarks that nature always acts for an end, which is the form, and it is also the form that explains a thing’s actual existence. Using this teleological point, he further explained that the “necessary in nature” might refer to matter, in which case the necessity is “hypothetical” (‘*an wad*’); for if the form is to exist, then necessarily what is preparatory for it and disposed to receiving it, namely, matter, must also exist. Alternatively, the “the necessary in nature” might refer to the form, in which case the necessity is “absolute” (‘*alá l-iṭāq’); for the actual presence of the form necessitates that the matter have the actual existence that it does.

Again the general question facing Abu Bishr was why should something necessary need an efficient cause to explain its eternal existence. In one of the surviving fragments from Abu Bishr’s *Metaphysics* commentary, he suggests that the universe’s final end, and so form, is eternal motion.\(^{15}\) Now, for Abu Bishr again, if the form of eternal motion is to exist, the existence of matter must be hypothetically necessary inasmuch as the matter is what receives and is preparatory for

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\(^{14}\) The commentary can be found in the Arabic edition of Aristotle’s *Physics*, *aṭ-Ṭabīr*, ed. ‘A. Badawī, 2 vol. (Cairo: The General Egyptian Book Organization, 1964/65), *ad* II 8-9.

that form, whereas it is the actual presence of that form that causes the absolute necessity of that matter’s existence such that the form-matter composite, which is the world, exists as it actually is, namely, eternally undergoing motion. According to the fragment from Abu Bishr’s *Metaphysic* commentary, God causes the universe’s matter to have the actual existence it does inasmuch as God causes it to have the form of eternal motion, which is its end. Thus insofar as God is an object of desire, He is the universe’s final cause, as Aristotle held. In addition, since God is the cause of the world’s having the form of eternal motion, and it is on account of this perfecting form that the matter, and so the form-matter composite that is the world, has absolute, as opposed to hypothetical, necessity, God also is the efficient cause of the world’s actual existence, as Neoplatonists had wanted.

Again our knowledge of Abu Bishr’s works is fragmentary and so the above is at best tentative. Still, it would seem that historically the argument was not a complete success. At the very least Avicenna himself found Abu Bishr’s argument wanting; for he objected that Abu Bishr simply failed to show sufficiently that the existence of the world itself ultimately depends upon God as its efficient cause. Thus Avicenna complained:

\[\text{[Abu Bishr’s position] is absurd; for what God brings about is that the necessity is from Him, not that the thing in itself has necessity. An indication of [Abu Bishr’s] heedlessness (\textit{ghafla}) is that he makes the necessity belong to something in itself, while being eternal is from another such that the necessary in itself does not have to be eternal and would not have continued without [God].}\]

Avicenna’s complaint against Abu Bishr should gives us reason to pause. His objection is that Abu Bishr’s position seems heedless of our intuitions that if something is necessary in itself, then its being eternal

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should follow as a matter of course, and so should not need some external agent to impart upon it eternal existence. What I shall argue is that in fact Avicenna’s objection suggests that Abu Bishr was trying to frame his argument in such a way as to be sensitive to Aristotle’s temporal frequency analysis of modalities.

There are at least two reasons for thinking that Abu Bishr adopted the temporal frequency model. First, we know that he translated into Arabic the first book of the *De caelo*, where again Aristotle set out his temporal frequency model of modalities, and thus Abu Bishr was certainly aware of the model and the arguments involving that model. Second Abu Bishr’s own student, *Yaḥyá ibn ‘Adī*, wrote a treatise, titled “Establishing the Nature of the Possible,” in which ‘necessary existence’ is simply assumed to be ‘that whose existence is eternal (*ad-darūrīy l-wujūd huwa alladhī wujūduhu da‘īmun*).17 If Abu Bishr had expressed doubts about the temporal frequency model, one might reasonably expect that one of his brightest students would have mentioned as much, and yet there is no mention of such a concern.

If Abu Bishr is committed to analyzing modalities in terms of temporal frequencies, then “the necessity belonging to something in itself” is probably Abu Bishr’s hypothetical necessity, which again he associated with matter. Now matter’s hypothetical necessity in the case of the world’s existence would come down to the claim that “necessarily if the world exists, then the matter exists.” If this claim is reinterpreted in terms of temporal frequencies, it becomes “at all times if the world exists, then matter exists,” a claim that is obviously true whether the world actually exists or not. Now consider the absolute necessity of the world’s existence, which for Abu Bishr occurs only when the form exists, and, as

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noted above, the world comes to have the form it has on account of God. Thus Abu Bishr would reinterpret the claim, “necessarily the world exists” within his own system of thought as “at all times God is informing matter.” If what I have suggested is correct, then not only has Abu Bishr shown how God is the efficient cause of the world’s existence, but, unlike earlier Neoplatonists, he has been able to retain the temporal frequency analysis of modalities as well.

While Abu Bishr’s argument is coherent within his own philosophical system, Avicenna’s complaint still carries weight; for I think our intuitions do follow those of Avicenna: that which has necessity of itself should not need something else to make it exist eternally. There is an additional problem as well, which is implicit in the larger context of Avicenna’s criticism. According to Avicenna (and the same is true for virtually all medieval philosophers) the proper scope of God’s power is whatever is possible. Consequently, the existence of the world, as an object of God’s power, should in some sense be possible. Given the strictures of the temporal frequency model, however, Abu Bishr simply could not say that a world that has always existed is something possible; for such a claim would translate in terms of temporal frequencies as “a world that has always existed is something that did not exist at some time,” which is clearly absurd.

IV. Avicenna’s Modal Metaphysics

In the remainder of this paper I want to consider Avicenna theory’s of necessity and possibility, and their relations to God and matter, and then how Avicenna addresses the challenge of making God the efficient cause of an eternal effect. The first peculiar feature about

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18 While I have focused on Greek and philosophical sources for Avicenna’s discussion, Robert Wisnovsky approaches much the same issue from Avicenna’s

Avicenna’s theory of modalities is that it rejects analyzing necessity and possibility in terms of temporal frequencies. For him the necessary (wājib) and the possible (mumkin) are ways of conceptualizing existence (wujūd) itself. Consequently, just as there is nothing more primitive by which one could define or prove the existence of existence itself, so likewise, Avicenna argued, there is nothing more primitive by which one could define the necessary and the possible. These notions, therefore, must be properly basic and so can only be defined in terms of one another.\textsuperscript{19}

Still, to help sharpen the distinction between necessity and possibility Avicenna introduced the language of “through itself” (bi-dhātīhi) and “through another” (bi-ghayrihi). Thus he described the necessary in itself as that whose actual existence is solely through itself and is in no way through another, whereas the possible in itself is that whose actual existence is through another.\textsuperscript{20} While both necessity and possibility are primitive notions for Avicenna there is a sense that necessity is better known to us; for necessity emphasizes a realized and actual existence in a way that possibility does not.\textsuperscript{21} Given this emphasis on necessity, Avicenna argued that whenever something actually exists (hāṣil) it must be necessary, whether necessary in itself or necessary through another. To make this point he has one consider the state of existence when something is merely possible and then the state when it is actual.\textsuperscript{22} When that thing is merely possible, it is in a state of possible existence; however, when that possibility has been actualized there is a change in that thing’s state of existence. That new state in turn exists

\begin{thebibliography}{9}
\bibitem{20} Avicenna, \textit{Metaphysics}, \textit{op. cit.}, I.6. §§2-6.
\bibitem{21} Avicenna, \textit{Metaphysics}, \textit{op. cit.}, I.5, §24.
\bibitem{22} Avicenna, \textit{Metaphysics}, \textit{op. cit.}, I.6. §5.
\end{thebibliography}

either possibly or necessarily. Now inasmuch as the possible existence is itself what has changed the new state cannot also be merely one of possible existence; for then there would have been no change in the state of existence, and yet that is exactly what did change. Thus it remains that when anything possible in itself actually exists, the state of its existence is necessary, albeit through another. 23

Avicenna next identifies those features of reality that correspond with the existence of the necessary in itself and the possible in itself. In the case of the necessary in itself this project involves showing that there is something necessary in itself, which he does by providing a wholly new proof for the existence of God and God’s relation to whatever is possible in itself.

His argument begins with the obvious fact that something exists. Given that for Avicenna existence’s basic conceptual divisions are the necessary through itself and the possible in itself, if what exists is necessary through itself, there exists something necessary through itself, and the argument is done.

If the existing thing is possible, then consider it along with every other actually existing thing that is possible in itself, whether there be a finite or infinite number of such things. In other words, consider the mereological sum or whole (jumla) of all and only actually existing things.

that are possible in themselves. Since this whole is an actually existing thing, it either exists necessarily through itself or possibly in itself. The whole of all things possible in themselves cannot be something existing necessarily through itself; for that which is necessary through itself does not exist through another, and yet wholes exist through their parts. Thus if the whole of all things possible in themselves were necessary through itself, then something necessary through itself would be necessary through another, which is contradiction.

So this whole must be something possible in itself, but since this whole actually exists, then, given Avicenna’s analysis of actual existence, it must be necessary through another. Now this other can either be internal or external to the whole. If it is internal, and so is a part of the whole, then that part exists either necessarily through itself or possibly in itself. Whatever is internal to the whole of all and only things possible in themselves could not exist necessarily through itself, since only things possible in themselves were included within the whole, and thus something would be both necessary through itself and possible in itself, which is a contradiction. If this part were possible in itself, then since the existence of the whole itself is through that part, and so all the parts within that whole are through it, that part’s existence would be through itself, in which case it would be necessary through itself, but this part was assumed to be possible in itself, and so there is again a contradiction. Thus, the existence of the whole of all things possible in themselves must be through something external to that whole, but all possible existents were included within the whole, and so this external thing cannot be possible in itself, but the only other division of existence is that which exists necessarily through itself. Therefore, something necessary through itself exists.

What is important to note about this argument is not only does it show that something necessary through itself exists, which we can safely identify with God, but it also shows that God is the efficient cause of the actual existence of whatever else besides Him exists. Thus at least one
part of the Aristotle-Philopoulos challenge to show that God is the efficient cause of an eternal world has been satisfied.

The next phase in Avicenna’s analysis of modalities involves arguably the most thorough investigation of the nature of possibility in the ancient and medieval world. He begins his inquiry thus: possibility either (1) is something subsisting in itself, and so it is a substance in its own right, or (2) is something inhereing in a substrate, where that substrate might either be (2a) immaterial or (2b) material.

Avicenna denied (1), that possibility is a substance in its own right, on the basis that substances do not essentially involve relations—nothing else is needed to complete or perfect them as substances—whereas possibilities are always correlative and so always require something else if they are to exist—for at least two things are needed to complete the existence of any relation. For example, if we take substances, such as humans, horses, oak trees, and the like, nothing more is needed to complete or perfect what this substance is; to say, “This (pointing to a particular tree) is an oak” is a complete thought. In contrast, possibility exists always and only for something; to say, “This (pointing to an acorn) is a possibility” is incomplete without some further reference, whether implicitly or explicitly, to that for which it is a possibility; for an acorn is not some possibility for being a human, or a horse, but for being an oak. Now if possibility were a substance, then it should have all the traits of a substance, and so substance and possibility would either both involve relations or both not, but again that is not the case. Thus, concludes Avicenna, possibility cannot be a substance in its own right, but must exist in a substrate.

Now if (2a) that substrate is immaterial, then, since one is considering the possibility that is ontologically prior to anything that is

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created, this substrate would have to be an uncreated immaterial being, or simply, God. While there clearly is a sense that God is the ultimate ontological basis for what is possible in itself (for as we have seen anything that is merely possible in itself ultimately is dependent upon God to explain its actual existence), still God cannot be the substrate in which the possible in itself inheres and has its subsistence. Although Avicenna considers a number of different ways of understanding this suggestion and presents criticism of all of them, I focus only on one.

According to certain Islamic speculative theologians the grounds for and explanation of possibility (istiḥāṣa) is in fact the power of an agent; for a thing is possible, so they maintained, only if the agent has the power to do or create it. To explain this suggestion more, most Islamic speculative theologians were occasionalists and as such reserved all causal efficacy or agency for God alone. Thus the position of the Islamic theologians was that something is possible just in case God could do it. Avicenna’s response was to observe that God’s power does not extend to what is impossible, but only to what is possible. Consequently, it does not speak ill of the divine power that God cannot make something that for instance involves a contradiction. Power, rather, is always referred to what is possible in itself. Given that power has as its proper scope the possible in itself, Avicenna argues against explaining possibility in terms of power thus. If, as the theologians maintained, something is possible just in case God has the power to do that thing, then when one says that God is omnipotent and so has the power to do everything that is possible—a seemingly meaningful statement—all one is really saying is that God has the power to do everything that God has the power to do—a trivially true and thus vacuous statement. In a similar vein, if

“possibility” is identical with “the power of an agent,” then the manifestly false statement, “I (Jon) have the power to do whatever is possible” turns out to be in fact a true statement; for I (Jon) do have the power to do whatever I have the power to do. In short, complains Avicenna, if “possibility” can be reduced to “the power of an agent,” one should be able to replace one phrase with the other and preserve the truth value of any statement in which one or the other term appears, but in fact one cannot. In effect, ends Avicenna, without some independent notion of possibility, God’s omnipotence itself becomes vacuous, since everything has the power to do whatever it has the power to do.

Given that possibility exists, and that it is not self-subsistent, but subsists in a substrate, and that this substrate is not immaterial, Avicenna concludes:

We ourselves call the possibility of existence the potentiality of existence, and we call that which underlies the potentiality of existence in which there is the potentiality of the existence of the thing a “subject,” “prime matter,” “matter” and the like, on account of many different considerations. Thus, matter precedes whatever comes into existence.

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26 At Physics, op. cit., I.2, 14.14-15.5 Avicenna list the various considerations: “This matter, in as much as it potentially receives a form or forms, is called its ‘prime matter’; and, in as much as it is actually bearing a form, it is called in this [book] its ‘subject’. (The sense of “subject” here is not the sense of ‘subject’ we used in Logic, namely, as part of the description of substance; for prime matter [15] is not a subject in that sense at all.) Next, in as much as it is common to all forms, it is called ‘matter’ and ‘stuff’ [lit. ‘clay’]. It is also called an ‘element’ because it is resolved into [elements] through a process of analysis, and so it is the simple part receptive of the form as part of the whole composite, and likewise for whatever is analogous. It is also called a ‘constituent’ because the composition begins from it in this very sense, and likewise for whatever is analogous. It is as though when one begins from it, it is called a ‘constituent,’ whereas when one begins from the composite and ends at it, then it is called an ‘element,’ since the element is the simplest part of the composite.”

27 Avicenna, Metaphysics, op. cit., IV.2, 140.15-17; also see Najāt, op. cit., “the Metaphysics,” I.17, 536.
Here we finally see both possibility and potentiality identified and inhering in matter as their ultimate substrate or subject.

Immediately upon reaching this point of the argument, however, Avicenna quickly adds that while possibility and matter must be prior to whatever comes to be, they cannot be prior to everything absolutely. For Avicenna, when matter, like possibility, is considered in itself, it does not have any actual existence, but is only a potentiality for some actual existence. Now, as we have seen when analyzing the nature of possibility, Avicenna did not believe that anything ever actually exists as just possibility in itself; rather, it exists as a certain relation to some proper perfection. Similarly, matter for Avicenna, exists as actual only insofar as it is specified to a particular kind by a cause and so completed and perfected, where that specifying cause is a form. Now we have already seen that for Avicenna God is the ultimate cause for any determinate or actual existence. Therefore, the world with all of its possibilities simply is matter actualized by all the various forms we see around us, which again have their ultimate source in God.

Given, this analysis of possibility and its relation to God, Avicenna can now demonstrate that the world must be eternal. He begins by having one assume, as part of a reductio ad absurdum argument, that the world (that is, a composite of forms and matter) had been created in the finite past. It would still be necessary in that case, maintained Avicenna, that the possibility of its existence preceded it; for if its existence were not possible, then its creation would be impossible. Given Avicenna’s analysis of possibility, however, it follows that the possibility of the world’s existence must inhere in matter as in its substrate. Consequently, assuming that the world, understood as the composite of forms and matter, were created in the finite past, matter would have existed prior to its own creation, which is absurd. Moreover, matter cannot subsist...

29 See Avicenna, *Physics, op. cit.*, III.11.
considered merely as the indeterminate substrate of what might possibly exist; rather, matter needs forms that actualize and give it determinate, concrete existence, which again it ultimately receives from God. In short, the possibility to create the world exists only as long as the matter exists, and the matter actually exists only when it is being in-formed, but the possibility has eternally existed and thus the form-matter composite, which is the world itself, has eternally existed, albeit eternally dependent upon God as its efficient cause. Here like Abu Bishr, Avicenna has show how God can be the efficient cause of an eternally existing world, while doing justice to our intuitions that the world’s existence is only possible.

I conclude by way of summary. In the thought of Aristotle, we saw that two conceptually distinct notions, namely, potentiality and possibility, played central roles in two arguments concerning the nature of the world and its relation to God. Aristotle linked potentiality with matter, and then argued that matter, and indeed the world itself was eternal. In contrast, he linked possibility with time and temporal frequencies, and then argued that if the world were eternal, its existence would not be something possible, but necessary and so not in need of an efficient cause. While Aristotle was happy to make the world’s existence eternal, necessary and without an efficient cause, most subsequent philosophers in both the Greek- and Arabic-speaking worlds were less inclined to do so. They wanted to make God the efficient cause of an eternal effect, and yet as long as potentiality and possibility were taken as conceptually distinct, philosophers were repeatedly faced with Aristotle’s arguments against such a reconciliation. It was not, then, until Avicenna’s careful analysis of possibility, which linked possibility itself with matter, and so potentiality, that this conflict was resolved in such a way as to do justice to both the philosophical arguments and the pre-philosophical intuitions motivating those arguments.