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This text examines the criticism of Ibn Sina's doctrine of necessity as it is held that Ibn Sina's view allows for no freedom: no freedom for God, for man, or in nature, while the text will rebuke that and will affirm that his position is a version of soft determinism or compatibilism.

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# Necessity, Causation, And Determinism In Ibn Sina And His Critics

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## Introduction

Ibn Sina's philosophy has been subject to various criticisms from Western philosophers over the course of the centuries. In this paper, the focus is on recent criticisms that gravitate about the doctrine of necessity. It is held that Ibn Sina's view allows for no freedom: no freedom for God, for man, or in nature. Each of these areas deserves closer examination. I will argue that Ibn Sina's position is best described as a version of soft determinism or compatibilism; and I will try to elaborate the precise sense in which Ibn Sina's views are deterministic. It is not my intention to defend Ibn Sina's view of compatibilism or determinism; but it is important to emphasize that he did not intend to deny divine or human freedom.

Several senses of determinism may be distinguished, some of which will apply to Ibn Sina, some of which will not apply to him, and regarding some of which there are insufficient grounds to make a judgment either way. This third type of determinism can consistently be denied while maintaining the core theses of Ibn Sina's metaphysics. This allows us to sketch a strategy by means of which the core theses of Ibn Sina's metaphysics may be defended against the charge of unacceptable restrictions on human and divine freedom.

Finally, we may ask how Ibn Sina's system could be revised without destroying its core in such a way as to allow greater indeterminacy than Ibn Sina himself would have been prepared to acknowledge. For this purpose Charles Sanders Peirce's tychism is examined as a concrete example of an indeterminist position. When tychism and Ibn Sina's determinism are compared, we will be in a better position to evaluate what changes would be needed in Ibn Sina's position to make room for chance as understood by Peirce.

## **Ibn Sina's Metaphysics of Existence, Necessity, and Causation**

In order to understand Ibn Sina's views on causal determinism and necessity, a general overview of his metaphysics is required.<sup>1</sup> Prior to Ibn Sina, there were two receptions in the Islamic world to Aristotle's Metaphysics, one represented by Farabi, and the other by Kindi. Kindi sought to legitimize Aristotle's Metaphysics in the eyes of the pious by telling them that it was really about *kašf m*, theology, and that it discussed the same sorts of problems of God's existence and attributes that were familiar to them. Farabi responds that this is misleading. The Metaphysics is really about being, and theological discussions are relevant to it only because He is the Creator of all beings.<sup>2</sup>

As Dimitri Gutas convincingly argues, this is what Ibn Sina learned by reading Farabi, and it explains his confession that it was only reading Farabi that enabled him to understand the Metaphysics. It is this insight that allows him to solve the puzzle about how to establish the subject of metaphysics when there is no prior science in which to do so in a way that goes far beyond the solution given by Aristotle. If Kindi sought to present metaphysics as theology, and if Farabi sought to correct this and present metaphysics as about being, Ibn Sina elucidates the point already made by Farabi, that theology and logic are to be included in metaphysics, because metaphysics should include the cause of all other beings, that which is necessary with respect to its existence, the *wajib al-wujud*, and what is most general, existence in the broadest or absolute sense, respectively. Hence, we find three concepts at the heart of Ibn Sina's view of metaphysics: existence, necessity, and causation.

Ibn Sina retains the tripartite division and names of the theoretical sciences from Aristotle: physics, mathematics, and theology; but, for Aristotle, each of these three sciences studies substances in a different respect, for being, in the primary sense, applies to substances. Physics studies material substances with regard to their being in motion or at rest. The subjects of physics are not separable from matter, and are movable. Mathematics studies these same substances with regard to their quantity and measure. It also considers such quantities and measures in abstraction from any material realization.

The subjects of mathematics are not separable (from matter, since they are only mentally abstracted from it) and unmovable. Finally, theology considers things with respect to their being, rather than with respect to their motion or measure. Like the subjects of mathematics, theology also deals with what is unmovable, but theology treats of substances that exist apart from matter, according to Aristotle. For Aristotle, theology and metaphysics are run together because metaphysics deals with being qua being,

and the prime mover is “the first and dominant principle” for all other substances.

For Ibn Sina, the first cause cannot be the subject of metaphysics, or first philosophy, because each science investigates the nature of the things whose existence is demonstrated in some higher science. Yet there is no higher science in which to prove the existence of the subject of metaphysics. While Ibn Sina reasserts the Aristotelian claim that the subject of metaphysics is being qua being, and he agrees that it is proper to investigate the principle or cause of beings in this science, he rejects the Aristotelian idea that this brings us to a consideration of the prime mover as the best candidate for the principle of all existents qua existents. For one thing, Aristotle’s first cause is a cause of motion, not existence. The study of motion only applies to entities considered as changing through time, and such changes will be in a thing’s accidents, or instances of generation and corruption. Generation in time, however, is only possible for material entities, for the material conditions must be present that make possible the coming into existence of the entity.<sup>3</sup>

Ibn Sina discovers a contradiction, or at least a tension, in Aristotle’s system. Aristotle had distinguished two sorts of questions: questions about whether or not a thing is, existence questions, and questions about what a thing is, whatness or quiddity questions. Yet, when Aristotle turns to being qua being, he singles out substances as the primary existents. Being in the primary sense is said to be of substances. So, the science of being qua being, metaphysics, becomes the science of substances. However, all of the categories answer questions of what a thing is. Insofar as a thing is considered a substance or an accident, it is considered in terms of what it is, not merely that it is. The science of being qua being, to the contrary, should concern itself with the existent insofar as it exists, without regard to it being of one category or another.

Ibn Sina insists that the subject matter of metaphysics cannot be confined to any one category, nor can it be confined to the attributes of anything but the existent insofar as it is existent.<sup>4</sup> Now, the existent, as such, has no quiddity other than its existence, and it is because of this that it does not require a superior science in which its own existence needs to be established. What is needed is only the admission of its “thatness” (*inniyyah*).<sup>5</sup> A superior science would be needed to establish that a subject exists—so that its whatness or quiddity could be investigated in the inferior science of the immediate rank below—only if the subject were the sort of thing with both existence and quiddity, so that one could attempt to prove that a thing with such and such quiddity exists. The existent, however, considered without regard to any question of what it is, can only be assumed.<sup>6</sup>

So, with Ibn Sina there is a radical break from the core principle of Aristotelian metaphysics that being is said to be in many ways, corresponding to the several categories, but in the primary sense, being is said of individual substances. To the contrary, for Ibn Sina, being applies primarily to that which is necessary with respect to its existence, the *wujud*, which is beyond the categories and hence should not be considered a substance.<sup>7</sup> While Aristotle sees each existent as a “this–such”, we might describe Ibn Sina’s God as a this with no suchness other than its this–ness. Of course, God has attributes, but these

do not constitute a suchness for God, because they are all interpreted as transcendental, that is, as consequences of His pure existence, rather than being properties descriptive of what He is, properties Ibn Sina calls *m̄huw̄* (literally “what-ish”, pertaining to quiddity).

The existent as such, according to Ibn Sina, can have no cause or principle, for that would only apply to quiddities. The existent thing, considered as having some quiddity (other than mere existence), will be contingent in its existence, while considered in itself, that is solely as existing without consideration of quiddity, will be necessary, either essentially or by virtue of having been granted existence by another. If contingent it will require (as ultimate cause) that which in its existence is necessary or essential, and this is identified with God, the *w̄jib al-wuj̄d*. The existent—considered absolutely, or without any conditions—is the subject of metaphysics. This has to be assumed without the need for a proof in a prior science, and yet the contingency of the world despite its temporal pre- eternity is needed to avoid the idea that it is the world itself that is the necessary existent.

The existent, regardless of quiddity, may be assumed a priori (if this is understood to include whatever truths are not scientifically established by experience), not because it is evident to the senses, but because its rejection or establishment would involve an examination of quiddity, and it has none. What may in this sense be considered the a priori assumption of an existent, however, does not imply that what is so assumed is necessary, and there is no question begging assumption of the existence of a necessary being. Instead, we are invited to consider an assumed existent, and to consider that regardless of its quiddity, it must be contingent or necessary, and if the former, in need of a causal relation to the latter. This is the heart of Ibn Sina’s metaphysics of existence, necessity, and causation, and it also gives structure to his proof for the existence of God, the *burhān al-ṣiddiqīn*.<sup>8</sup>

Herbert Davidson has argued that Ibn Sina’s proof is invalid since it neglects an alternative to the grounding of contingent existence in necessary existence: the universe may exist by virtue of its components. Instead of viewing existence as needing a foundation in what exists necessarily, Davidson suggests that the parts of the universe might be compared to an arch, in which the position of the arch is caused by the positions of the stones that compose it, and yet the positions of the stones are caused by the position of the arch. Ibn Sina does not allow any sort of circularity in causation, not even partial.

Furthermore, Davidson argues, Ibn Sina rules out an infinite regress of causes even before providing any argument against it, while it seems possible that the universe might be caused to exist by its components, and each component by its subcomponents, and so on ad infinitum. Davidson takes these objections to be suggested by Ghazali’s objection to Ibn Sina’s proof, namely that the cause of the totality of existents may be internal to the totality without requiring any external cause.<sup>9</sup>

Davidson’s claim is true enough, that the alternative of mutual support is not explicitly considered by Ibn Sina in the form he suggests. However, Ibn Sina was aware of mutually supporting propositions and other forms of mutual support; so we should not consider his proof to be invalidated by such considerations unless there is no plausible response that Ibn Sina could give on his own behalf. Even if

it is allowed that two things mutually necessitate each other causally, the dyad itself will be contingent.[10](#)

Likewise, even if it is granted that some material causal dependence may extend downward ad infinitum through ever finer components, the question of the efficient cause of the totality with all its components will remain.[11](#) The contingency of the universe is not merely a definitional trick that forces one to admit an illusory necessity; it stems from the requisites of explanation inherent to the scientific attitude. To reject Ibn Sina's proof, one must step outside the bounds of the scientific enterprise, as he understood it, and deny any interest in the sort of explanation pressed by Ibn Sina.

Ibn Sina might be accused of the fallacy of composition, that is, it may seem as though he is arguing that since the world is composed of finite contingent parts, the entire world must also be finite and contingent, and thus in need of an external cause. Suppose that the whole is not contingent. Then it would have to be necessary, and this would be sufficient to give us Ibn Sina's *wujib al-wujib*. But Ibn Sina does not make this move. The denial that the whole might be necessary can easily be proved on the grounds that the whole is dependent on its parts; and whatever depends on anything, let alone what is contingent, is itself contingent. However, it is important to look deeper than this simple refutation to grasp the significance of Ibn Sina's metaphysics.

In the Aristotelian view, that which is contingent is that which is at some time but not all times, and the necessary is equated with the eternal. From the fact that there are contingent things in this sense, it would be a mistake, an instance of the fallacy of composition, to argue that the whole composed of temporally bounded things must also be temporally bounded. On the contrary, the universe could be eternal. Ibn Sina argues that even if the universe is eternal, it will still be contingent, in need of a cause. If so, the reduction of necessity to eternity must be wrong. Ibn Sina does not present a proof with this form, but he could have; and I think it shows how he might have responded to the sorts of objections raised by Davidson.

As Goodman observes, "The key to Ibn Sina's synthesis of the metaphysics of contingency with the metaphysics of necessity lies in a single phrase: considered in itself."[12](#) That which is emanated from the necessary is necessitated by the other, but is contingent considered in itself. For Aristotle, necessity was to be found in the consideration of quiddities. A thing is necessarily a such, for example, a horse, if it is essentially so, that is, if its being a horse is determined by its quiddity. For Ibn Sina, the question of necessity and contingency is posed with regard to existence instead of quiddity.

Being, when considered in itself, that is, when considered apart from any quiddity, turns out to be the *wujib al-wujib*, yet the *wujib al-wujib*, or God, is not the subject of metaphysics. Identity is not sufficient to determine the subject of metaphysics. Even if  $x=y$  and  $x$  is the subject of metaphysics, this does not imply that  $y$  is the subject of metaphysics. Being the subject of an inquiry, is what philosophers today would call an opaque context. Everything depends on how the absolute existent is considered.[13](#)

Related to the distinction between ways that a thing might be contingent, i.e., contingent in existence, or

contingent in the sense of not being necessitated by quiddity, is a frequently encountered confusion about the sense in which Ibn Sina considered existence to be an accident. It was interpreted by Ibn Rushd to mean that Ibn Sina thought that existence is an accident rather than a substance, and he criticized this view. Since then, it has been common to interpret Ibn Sina as holding that existence is an accident that inheres in a substance.<sup>14</sup>

However, Ibn Sina considered the entire distinction between substance and accident to pertain only to quiddities, and he held that existence is accidental only in the sense that contingent beings cannot be considered to have existence as part of their quiddity.<sup>15</sup> Goodman and Pazouki observe that the Kantian slogan that existence is not a predicate may be understood as a reflection of Ibn Sina's distinction between existence and quiddity.<sup>16</sup>

The Kantian critique of the ontological argument, as found in Anselm or Descartes, would be endorsed by Ibn Sina, too, if the ontological argument were seen as the vain effort of trying to derive existence from a quiddity.

What Ibn Sina accomplishes is the wedging apart of what can be safely assumed without need for any proof or evidence, i.e., the existent qua existent, from what is necessary, the *wujib al-wujud*. As Goodman understands it, Ibn Sina succeeds in reinstating "the Platonic recognition that all necessities in nature, in the realm of becoming, are relative, not absolute."<sup>17</sup> For Plato, the absolute is what is unchanging and eternal, while for Ibn Sina, the abstraction of the absolute is pushed further, beyond temporality.

Ibn Sina divides existents into those that depend for their existence on another and those that are not dependent in this way. The structure is one that was familiar in the Islamic sciences that Ibn Sina studied. In the study of hadiths, chains of narration would have to be given that lead back to the person who originally uttered the reported narration. Among the Sufis, chains of authorization (*silsilah*) were given that led back to 'Alī ibn Abī Ḥabib (peace be with him). Among the scholars of Islam, it was common to have a permission (*ijazah*) from a teacher who also possessed a permission from his teacher in a similar chain of authorization. It is this tree like or chain like structure that Ibn Sina used to explain necessity and contingency in existence. That which is necessary in existence is the ultimate source of all existence. Everything else that has existence must have it either directly or indirectly from this ultimate source. The relation between one link in this chain to another by means of which existence is obtained is causation. If x provides the existence of y, then x is the cause of y.

What is considered here, however, is not a relation between events, but between existents. One event may be a partial cause for the coming into existence of the existent under consideration, but here we should consider only the complete cause of existence and not partial causes.

Everything that exists, according to Ibn Sina, exists necessarily, either because it is itself necessary, or because it is made necessary by the complete cause of its existence. However, the same thing may be

necessary, with regard to its complete cause, yet contingent in itself. What does it mean for an actual existent to be contingent in itself? One answer is that it is merely logically contingent, that is, there is no valid logical proof to the existence of the thing (unless the premises of the proof take into account its complete cause). Another answer would be that there is another possible world that is just like that actual world, except that the contingent thing being considered does not exist in that world. This answer is totally untenable because if we assume that contingent existents have causal effects, then the absence of the entity in worlds similar to the actual world should also lead to the absence of those effects.

Perhaps a better formulation of the second explanation of contingency could be put as follows. Suppose *a* is a contingent existent that comes into existence at time *t*. To say that *a* is contingent might then be interpreted to mean that for some merely possible world, *w*, there is some time  $t' \leq t$ , such that the actual world and *w* are exactly the same until *t'* but that while *a* exists in the actual world, it does not exist in *w*. This answer would be useful if Ibn Sina held a temporal account of contingency, like Aristotle's. However, we have already seen that one of the main features of Ibn Sina's theory is that the world is contingent despite being temporally eternal. Indeed, this is one of the reasons his view was condemned by Ghazali as heresy.<sup>18</sup>

What takes the place of temporal priority in Ibn Sina is causal priority. If we are to consider only complete causes, there will be no question of temporal succession here, since the effect of a complete cause cannot occur without this cause and it must occur when the cause is complete.<sup>19</sup> Given these points, we might formulate a version of the second answer to the question of what is meant by the contingency of *a* by claiming that this means that with regard to the chain of simultaneous complete causes leading to the existence of *a*, there is a possible world *w* in which *a* does not exist, but such that some proper part of the chain for *a* does exist. I will discuss this approach further later.

At this point we have considered two answers that might be given to the question of what it means for *a* to be a contingent existent “in itself”. First, there is what might be called the “logical contingency” account; and second there are various “possible worlds” accounts of partial causal contingency that might be given. The first answer is certainly consistent with Ibn Sina's views, but he distinguishes metaphysical from logical necessity, and clearly seems to intend something more substantive for the contingency of the created world than mere logical contingency. Logic deals with generalities, not with the existence of any particular individual. Possible worlds accounts could be developed in various fascinating ways, but there is no evidence in Ibn Sina's texts to suggest that he had anything like this in mind. A third answer, that seems more in keeping with his views would be to say that if *a* is an existent, it is contingent just in case it depends for its existence on something else.

This answer will be disappointing to those who think that contingency can only be found by an account of how things could have been otherwise, but Ibn Sina avoids such talk. Indeed, Ibn Sina follows Aristotle's Metaphysics, with regard to the definitions of “necessary” except that one of the definitions

given by Aristotle, “that which cannot be otherwise”,<sup>20</sup> is passed over in silence by Ibn Sina. He simply leaves it out.<sup>21</sup> The reason Ibn Sina leaves out this definition of necessity in terms of what could not be otherwise is that he thinks it is circular. So, Ibn Sina is not rejecting the idea that what is contingent might be otherwise than it is, he merely thinks that this is uninformative. What is needed is more content to the idea that something could have been otherwise. Ibn Sina finds this content in the idea of ontological causal dependence. The necessary is that whose existence does not depend on anything else.

We could try to formulate this as follows, using “ $E!x$ ” for “ $x$  exists”, and “ $Dxy$ ” for “ $x$  depends for its existence on  $y$  if  $x$  exists and  $x$  depends for its nonexistence on  $y$  if  $x$  does not exist”.

1.  $\Box E!a \equiv df. E!a \ \& \ \sim(\Box x) (x \neq a \ \& \ Dax)$

2.  $\Box \sim E!a \equiv df. \sim E!a \ \& \ \sim(\Box x) (x \neq a \ \& \ Dax)$  From this and the conversion rule for possibility:

3.  $\Box A \ \Box \sim \Box \sim A$  we can derive:

4.  $\Box E!a \ \Box \ E!a \ \Box \ (\Box x) (x \neq a \ \& \ Dax)$

If something is contingent, it is possible but not necessary: the conjunction of (4) and the denial of (1), which yields:  $(\Box x) (x \neq a \ \& \ Dax)$ ; in other words, the ontological status of an entity, whether it exists or not, is contingent if and only if it depends for its existence (or nonexistence) on something else. We can then say that something is a contingent existent if and only if its ontological status is contingent and it exists:

5. (Cont) $E!a \ \Box \ E!a \ \& \ (\Box x) (x \neq a \ \& \ Dax)$

These points will be of use when we consider the nature of Ibn Sina’s determinism and its critics. Before we do so, we need to examine the theory of emanation.<sup>22</sup>

## **Emanation**

The type of causation through which the First Cause is related to its effects is emanation, which may be considered a kind of efficient causation; not, however, of the sort that imparts motion, but of a sort through which existence spills over from the necessary to the contingent: “[This science] will [also] investigate the First Cause, from which emanates every caused existent inasmuch as it is a caused existent, not only inasmuch as it is an existent in motion or [only inasmuch as it is] quantified.”<sup>23</sup>

Islamic philosophy particularly draws on the neo-Platonic tradition by taking up the theory of emanation. This theory also found its way into Christian theology through the Church fathers, who held that the emanation of the persons of the Trinity precedes creation. In Islamic theology, on the other hand, emanation is used as a theory of creation.

According to David Burrell,<sup>24</sup> emanation is governed by the axiom that from the pure One, there can

only come one; while the creationist allows that the intentional act of creation can produce many things. Ibn Sina's great synthesis was intended to merge the emanationist and creationist views. On the one hand, Ibn Sina holds that God is distinct from all other things in being necessary and in being without any quiddity other than existence itself. On the other hand, the entire universe is the effusion or emanation of pure being. Thus, we find both elements of transcendence and immanence.

The emanationist scheme is described by Seyyed Hossein Nasr<sup>25</sup> as being thoroughly consistent with Islamic scriptural teaching; while Parvis Morewedge objects that emanation cannot be considered creation *ex nihilo* because the first intellect or first emanation stands as an intermediary between God and the world. <sup>26</sup>

Burrell, Morewedge, and Netton agree that creation and emanation are to be seen as rival explanations for the existence of the universe. To the contrary, Ibn Sina views his theory of emanation as a philosophical interpretation of creation. Among the *mutakalimūn*, the early theologians of Islam, 'Abd al-Jabbar had given an extensive commentary on the debate of Muslim theologians about how the world could be brought into existence by divine fiat, and against overly literalistic interpretations of the Qur'an, argues that the divine command is not an instrument through which God effects creation.<sup>27</sup> The debate is one with which Ibn Sina would have been well acquainted. The outcome of the debate, regardless of whether one agrees with the conclusions of 'Abd al-Jabbar, would have supported the view that emanation theory is a viable a candidate for explaining creation.

The criticism of emanation theory as inconsistent with the doctrine of creation has a long history. Aquinas rejects emanation theory and the imposition of intermediaries between God and the world. Duns Scotus also advances several reasons against emanation theory, "the most important being that there can only be contingency in the world if the first cause does not act by necessity (Ordinatio Id. 8 p. 2 q. un.)"<sup>28</sup> The answer that may be offered to Scotus on behalf of Ibn Sina is that there is a sense in which God acts by necessity, insofar as the divine wisdom and beneficence requires Him to will as He does; but there is also a sense in which God's actions are contingent, insofar as He is not coerced. It is not the case that God's attributes have power above Him and force Him to act as He does, because for Ibn Sina the divine attributes are not descriptive properties of a divine quiddity.<sup>29</sup>

When it is said that someone wills something, what is described is a relation between the agent and the object of the agent's will. God may be said to will Himself, and in this respect His willing is an attribute of essence. With respect to His willing creatures, however, since it is impossible for Him to will the existence of a creature without bringing about the existence of that creature, His willing may be said to be contingent since one of the terms of the relation it describes is contingent.

The contingency of the creature is what Duns Scotus would describe as a real contingency, and not merely a logical contingency, since it is contingent in the sense of its dependence for its existence on the Creator, and not merely in the sense of being described without contradiction. But in that case, contrary to the view of Scotus,<sup>30</sup> there is a sense in which Ibn Sina allows that the creative divine will is really

contingent despite being necessary. It is contingent, because one of its terms has dependent existence, but it is necessary because “the existence of what comes to be from the First is by way of necessity, since it has been [shown to be] true that the Necessary Existent in Himself is necessary of existence in all His aspects.”<sup>31</sup>

Whether God acts directly to bring about a multiplicity of things or whether He creates this multiplicity by means of a succession of emanations would be taken by Ibn Sina’s opponents to make enough of a difference to claim that the emanation theory conflicts with the doctrine of creation. The issue only becomes more acute when emanation theory is taken to be incompatible with divine freedom.<sup>32</sup>

Burrell reports that precisely this objection was issued by Maimonides. Maimonides claims that if the world is a necessary result of God’s existence, like the relation between efficient cause and effect, then God’s act of creation cannot be a free act of the divine will, and furthermore, the distinction between God and world will be obscured, since the necessary result of a necessary cause will be as necessary as the cause. Once again, Ibn Sina’s line of response should be clear. To the latter point he may respond that the difference is maintained between God and world because the world depends on God, while God does not depend on the world. God is the source of existence, not the recipient. To those who object to emanation theory with the claim that it would make the divine will like a person’s involuntary movements, the response is available to the Peripatetic that the involuntary movement would occur whether or not the person who moves were satisfied with the movement. This is not true in the case of divine emanation.

If God were not satisfied with His actions, they would not occur. Perhaps this explains why Ibn Sina emphasizes the point that God’s actions are performed in accordance with the divine will and that He is satisfied with His actions.<sup>33</sup> If God’s actions are determined by His attributes so that there is a sense in which He could not have created otherwise than He did, meaning that He could not have created anything less than the best of all possible worlds, given His power, wisdom and beneficence, this does not mean that God is in any way coerced. Furthermore, it does not mean that God’s power is insufficient for the creation of any alternative world. The creation of the world is, thus, a result of the free choice of God, but not in the sense of an arbitrary choice or whimsy.

Burrell’s suggestion that emanation is inconsistent with the religious outlook because it denies the intentionality of the creative act fails to appreciate the fact that the emanationist framework contains its own interpretation of intentionality. Divine intentionality is not like human intentionality because it is not limited by the stream of time. Ibn Sina does hold, however, that God creates what is best in accord with divine wisdom, and hence there is purposefulness in creation: it is all for the best.

Where Ibn Sina’s emanation theory runs into real problems, however, is in its link with physics. Each of the first ten created intellects was associated with a celestial sphere in a Ptolemaic system in which the planets all revolve about the earth. This, however, is not a necessary feature of the emanationist picture of the world any more than it is a necessary feature of more literalistic interpretations of creation.

What is essential to the emanationist scheme is the view that the creation of the physical world is mediated by immaterial creatures. As William Chittick explains, the emanationist view is one according to which degrees of reality may be distinguished by the intensity of unity, life, consciousness, power, compassion, wisdom, love, and so on.<sup>34</sup> In the same way that existence descends from God to creatures, by means of the immaterial intellects, so too, God's creatures may ascend toward Him in knowledge by following the causal path upward.

The opposition to emanation theory stems from a view that sees the philosophical enterprise as an incompatible rival to religion, rather than as a way to the intellectual understanding of truths that are expressed in another manner in theological sources. To present emanation and creation as rival explanations for the origin of the world is to beg the question against the proponents of emanation, for it is precisely this rivalry that they sought to undermine by considering emanation as an esoteric model for creation.

Perhaps the objections of Christian thinkers to emanation theory are a reflection of the initial confrontation between Christianity and its Neo-Platonist opponents as it became established in Europe. Islam was not similarly opposed by philosophers of the Greek tradition, who were seen as sages, and sometimes even as prophets. Of course, opposition to the Greek tradition can be found among religious people with puritanical inclinations regardless of what religion they confess. But even today, there is greater opposition to evolutionary theory from the side of Christian fundamentalists than from Muslim fundamentalists.

At least it seems that Muslim intellectuals are more prone to allow that secular science and religious doctrine may be compatible because they describe reality at different levels. The difference between the compatibilism that some Christian philosophers<sup>35</sup> have advocated with regard to evolution and the Bible and the compatibilism that Ibn Sina sees between creation and emanation is that Christian evolutionists would not argue that the theory of evolution provides a deeper or esoteric meaning for what is stated in the Bible, whereas Ibn Sina, like Hegel, thinks of his philosophical theory as providing the key to the esoteric exegesis of religious teaching for those who are capable of understanding it.

## **Determinism**

Determinism comes in many varieties and may be applied to theories of divine actions, human actions, or physical events. In what follows, I will focus on the discussion of these issues by Catarina Belo, since she provides the most extensive examination to date on the determinism of Ibn Sina. Not only does Belo offer a detailed analysis of the relevant texts in Ibn Sina (and Ibn Rushd), but she also presents a valuable review of the secondary literature on this issue. Belo's entire work has as its purpose the defense of the thesis that Ibn Sina was a strict determinist. My purpose, to the contrary, is to find openings in Ibn Sina's theory for compatibilism, where his position is clearly determinist, and to explore how the most fundamental principles of his system could be preserved with allowances for some

indeterminism. Despite the cross-purposes, Belo's work must be acknowledged as the best resource available for the study of the issue of determinism in Ibn Sina's philosophy.

Belo defines determinism as "the theory that every event or substance in the world has a definite and necessary cause such that it could not have been otherwise."<sup>36</sup> Since Ibn Sina's metaphysics is one of substances and accidents rather than events, we can ignore the complications that are introduced by considerations of events. Furthermore, talk of events here is misleading, since event causation is generally understood in terms of a temporal sequence of causes, while Ibn Sina's metaphysics of causation is ultimately about the atemporal causal sequence from the *wujūd al-wujūd* through the intellects to the sublunary world. On the other hand, there is a place for a discussion of event causation with regard to Ibn Sina's physics, and with regard to discussions of human actions, given that actions may be considered events. However, regardless of how events are treated, and even if we eliminate reference to events altogether, Belo's definition is still ambiguous. When it is said that every substance has a necessary cause, this could be taken to mean that the cause must be in itself necessary, or that the cause is necessary for the substance. It could mean that determinism implies either of the following:

- (A) Every accident or substance in the world has a definite cause that exists necessarily and is such that the accident or substance could not have been otherwise.
- (B) Every accident or substance in the world has a definite cause such that this cause is necessary for the existence of the accident/substance and that necessitates the existence of the accident/substance.

If what is meant is (A), this would mean that only things that exist necessarily can be causes. It is unlikely that Belo means to attribute to Ibn Sina the claim that the only cause of anything is God, so the phrase "exists necessarily" in (A) must mean that the cause is either necessary in itself or necessary by another. But for Ibn Sina, everything that exists is either necessary in itself or is made necessary by another, otherwise it could not have come into existence. To add that an effect could not have been otherwise because of its cause is understood in Ibn Sina's system to mean nothing other than that it is necessary; but necessity must be either in itself, which is impossible for an effect, or by another, and necessity by another means that the effect obtains its existence through its cause. The claim that every effect obtains its existence from its cause, however, is not sufficient to support the charge of determinism. Hence, if Belo's definition of determinism is interpreted as (A), it does not adequately capture what is meant by determinism unless one adds that necessity and necessitation are to be understood in some manner other than by the picture given in Ibn Sina's works of a chain through which existence is inherited.

If what is meant is something like (B), the necessitation and being necessary for something here are not the same as the necessity of existence discussed earlier, but the necessity of a conditional or of a relationship. For Ibn Sina, this relationship would appear to be that of dependence. To say that the cause is necessary for the existence of its effect is to say that the existence of the effect can be obtained nowhere but from the existence of the cause. To say that the cause necessitates its effect is to say that

the cause completely provides existence for the effect. To say that the cause of a substance is such that the substance could not have been otherwise, given this interpretation of necessity as describing the relations of ontological dependence, is merely to say that the cause provides the existence of its effect.

Ibn Sina will affirm that following:

(C) Every substance is such that it receives its existence from its cause and only from its cause.

This by itself, however, is not enough to make him a determinist. There may well be a sense in which Ibn Sina is a determinist, but the affirmation of (C) is not sufficient for this. Yet (C) is a plausible interpretation of how Ibn Sina would interpret Belo's definition of determinism on reading (B). What is it that makes (B) deterministic but not (C)? I believe it is the underlying notions of necessity. If necessity is interpreted solely in terms of independence of existence, then claiming that every effect is necessitated by a cause that is necessary for it is not enough to give us determinism. What if the cause is itself necessary in its existence? Wouldn't this make the effect necessary in a deterministic way? In (normal<sup>37</sup> systems of) modal logic, after all, from the necessity of  $p$  and the necessity of  $p$  implies  $q$  one can derive the necessity of  $q$ . This principle, however, does not apply to interpretations of necessity as ontological independence: if  $a$  does not depend on anything for its existence, and  $a$  provides  $b$  with existence, it does not follow that  $b$  does not depend on anything for its existence. The existence of  $b$  will depend on  $a$ , and so,  $b$  will be contingent, since contingency is defined in the system as having derivative existence. What is contingent, however, is logically what could or could not be. So, even if  $b$  is necessarily caused by a necessary being,  $b$  will remain contingent in itself, that is, it could have been otherwise.

Belo gives several definitions of chance, the relations among which are far from clear. Although she warns against confusing epistemological issues pertaining to predictability with metaphysical determinism, her discussion of chance in the very next paragraph mixes metaphysical and epistemological issues:

“[C]hance can be defined as the occurrence of random or contingent events which have no definite cause but come to be spontaneously. A chance event is thus an event without a cause, or an event that issues ‘loosely’ from its cause (given that a cause or a set of causes may have many possible effects). Chance can also be defined as the coincidence or coming together of two independent causal chains. An upholder of chance in this sense states not only that the future is unpredictable, because the full causal connexions obtaining in the present are in principle unknowable due to the randomness of chance, but also that past events could have happened otherwise because not everything occurs of necessity”.<sup>38</sup>

The first part of this paragraph pertains to metaphysical claims that there may be events without causes or with causes that do not determine a specific effect. The idea of coinciding causal chains is discussed by Ibn Sina with regard to coincidence,<sup>39</sup> but much of the rest of the paragraph is concerned with

epistemological questions of predictability. With regard to past events, to say that they could have happened otherwise is merely to state that they are contingent.

Belo continues by distinguishing three sorts of determinism: metaphysical, physical, and ethical. We have already discussed metaphysical determinism. Physical determinism pertains to the temporal sequence of events; and ethical determinism is the theory that all human actions are determined by prior causes, whether metaphysically prior, as in theological determinism, or by temporally prior, as in the sort of theories that occupied Hume and Laplace. It has been common in discussions of the issue of free will and determinism to divide positions into three: compatibilism, or soft determinism, and two sorts of incompatibilism: libertarianism and hard determinism.<sup>40</sup> Today, some prefer the term “hard compatibilism” for the view that we have no free will and that free will and determinism are incompatible, since William James understood “hard determinism” to be the position that we have no free will because determinism is true.<sup>41</sup> Belo ignores compatibilist positions altogether and baldly asserts:

“Finally, ethical determinism, or the determinism of the human action, claims that man’s acts are determined, either by natural laws, or through God’s action, or a combination of these two, through natural laws pre-established by God. It explicitly rules out free will in human beings”.<sup>42</sup>

Rather than finding evidence for incompatibilism in a given author, Belo assumes an in-compatibilist position, and on that basis treats indeterminism as the affirmation of free will.<sup>43</sup>

Belo’s presupposition of incompatibilism is unfortunate, since it would seem that Ibn Sina would have classified himself as a compatibilist. One might hold that Ibn Sina’s compatibilism is untenable, but Ibn Sina did not argue in favor of the position that freedom of will is incompatible with the causal determinism of his metaphysics. Belo claims that she does not want to examine the issue of ethical determinism because it was not the primary focus of Ibn Sina, but yet it is precisely attention to these issues that show that Ibn Sina should be considered as one who advocates a compatibilist position rather than hard determinism.

In the conclusion of her book, Belo summarizes her interpretation of Ibn Sina:

“In itself Avicenna’s famous principle that every existing being other than God is possible in itself and necessary by virtue of another, i.e., by virtue of an efficient cause, lays the foundation for a philosophical system which is strictly deterministic. In other words, Avicenna’s repeated assertion that whatever comes to be is necessary through its cause must be taken in itself as a defence of strong determinism. Although he does not stress the primary Aristotelian meaning of necessity as that which cannot be otherwise, it is undoubtedly implied by his usage of the term. Therefore, when he says that everything has a definite efficient cause, it is to be assumed that the event in question could not have been otherwise.”<sup>44</sup>

One could plausibly argue that the “famous principle” may be interpreted deterministically, but to claim that causal necessity must be interpreted as a defense of strong determinism goes too far. If

necessitation by a cause is interpreted to mean only that the existence of the effect comes from the cause, indeterministic theories may be given that are compatible with this, as will be seen below. Although there is no reason at all to think that Ibn Sina even entertained the idea of any such indeterministic interpretation of his metaphysics, this by itself does not warrant the attribution to him of the contrary deterministic position. Belo admits that Ibn Sina does not stress the meaning of necessity as that which cannot be otherwise, and contrary to her, I think it is by no means obvious that this is his implied meaning, especially if interpreted in terms of possible worlds.

Ibn Sina does not stress the meaning of necessity as what could not be otherwise, because he sees it as a mere logical equivalence, and hence as non-informative, while Belo bases her criticism of Ibn Sina as a strict determinist by repeatedly stating that his position implies that what has occurred could not have been otherwise in a substantively informative sense.

When it is said that an event is caused, this means that it is made necessary by another though it is contingent in itself, and this means that in itself it could have been otherwise, while in view of its cause it could not have been otherwise. However, to say that in view of its cause it could not have been otherwise need not be seen as an affirmation of determinism in the sense that every possible world in which the cause occurs is a possible world in which the effect also occurs, not because Ibn Sina would affirm the existence of possible worlds in which the cause occurs without its effect in the actual world, but simply because he does not understand necessitation in terms of alternative possible worlds. To say that the effect could not have been otherwise given its cause, for Ibn Sina, means only that the existence of the effect comes from its cause alone. There is nothing other than the cause available to provide existence to the effect.

Lenn E. Goodman has offered an interpretation of Ibn Sina's metaphysics that allows for contingency, and so Belo labels his interpretation as indeterminist and finds it "untenable". Goodman's view, however, is not that some events are causally determined while others are not; rather, Goodman holds that a single event may be considered both determined, by another, while it is in itself contingent. Belo accuses Goodman of a conflation of logical and causal necessity, but Goodman seems clear about Ibn Sina's differentiation of them. To say that an event is contingent in itself but becomes necessary by its cause is not merely to say that although the assumption of either the existence or non-existence of the event does not commit one to a contradiction (logical contingency), the event is causally necessary because of its cause.

Both the contingency of the event in itself and the fact of its being causally necessitated are to be interpreted in terms of Ibn Sina's metaphysics of existence and causation. The event is contingent because it depends for its ontological status on something other than itself. In itself, the event is in need of a cause to push it into existence. It might not have occurred in the sense that its own quiddity is not sufficient to guarantee that it should have been caused to exist. It is, considered in itself, causally contingent; while considered together with its cause, it is necessary, because the cause makes it come

into existence. The contingency of the effect in itself is not merely logical, for it is not simply the absence of a contradiction in any true description of the effect in itself (that is, without the inclusion of its relation to its cause); rather, the real contingency of the effect consists in its factual dependence on something other than itself in order to come into existence.

The difference between logical possibility and real possibility that was emphasized by such medieval authors as Scotus, draws on the discussion of potency in Aristotle's Metaphysics.<sup>45</sup> Mere logical possibility is asserted in the absence of a formal contradiction between parts of a judgment. Real possibility, on the other hand, is due to the nature of the object considered that gives rise to different accidents. This way of looking at real possibility limits considerations to the nature of the substance with regard to which something is said to be possible. A piece of wood has the inherent possibility of burning not merely in the logical sense that there is no contradiction in the statement "The wood burns," but because wood is of such a nature that under the appropriate conditions it will burn. The burning of the wood was a real possibility while the wood existed, even if as long as the wood existed it was kept under water, and in view of these external conditions, it could not burn. When Goodman notices that something may be necessary by another, in Ibn Sina's terms, but under another consideration it is contingent, the second consideration need not be mere logical possibility, as Belo assumes.

Belo claims that Goodman "fails to draw the full implications of Avicenna's principle."<sup>46</sup> She claims that the contingency of an event is purely theoretical and has nothing to do with human freedom, as a complement to the way in which God's determination is expressed in the fact that the event is necessary through its cause. This complaint is further evidence that Belo does not take seriously the compatibilist contention that by free choice one may perform actions that are causally determined. If this form of compatibilism is correct, then Goodman's position makes sense, because when a decision is made to perform a voluntary action the action is considered with respect to its quiddity, and not with regard to the chain of causes from God to the decision of the agent through which the action obtains its existence.

Belo contends that compatibilism would require there to be two parallel causal chains leading to the event, one from God and one from the agent.<sup>47</sup> This, however, is not how compatibilism was normally viewed in the tradition of thought stemming from Ibn Sina, which includes Thomas Aquinas. Aquinas advocated a compatibilist position similar to Ibn Sina's, according to which human actions may be considered free because they are not coerced. As Gelber observes in her recent study of Dominican views on this issue:

"Since providence governs all things within Aquinas' cosmos, it extends its power even over acts of free choice. As Aquinas wrote, acts of free choice trace to God as to a cause; therefore, everything that happens as a result of the exercise of free choice must be subject to providence."

Freedom of the will consists in his view not in freedom from the necessity of the end, for in those cases in which there is only one way to achieve an end the will must choose that way in order to achieve its desire. Nor is natural or material necessity incompatible with the will because the will must be what it is,

and in being what it is, it must necessarily adhere to its final end, which is happiness. Rather, the will is free because it is free from the necessity of coercion.”<sup>48</sup>

Instead of the two parallel causal chains of causation that Belo requires for compatibilism, what we find in Aquinas is a single causal chain from God that reaches the human action only by way of a human act of will that is determined but not coerced; and this is what we find in Ibn Sina, as well.<sup>49</sup>

Belo complains that on Ibn Sina’s view God never relinquishes His power, and hence, although Goodman speaks of Ibn Sina’s combination of contingency and necessity, “In fact there is only necessity.”<sup>50</sup> But there is no claim that God relinquishes his power among the Shi’ite and Mu’tazilite opponents of *jabr*, a position they took to be similar to what James would call hard determinism. According to the famous Shi’ite narration attributed to Imam Ja’far (peace be with him), “Not *jabr* and not *tafwiq* but an affair between the two affairs.” By *tafwiq* is meant a view according to which God relinquishes His power and delegates power to the agent. So, the idea that divine compulsion could be denied without holding that God relinquishes His power would have been familiar to Ibn Sina.

A number of writers have reached the conclusion that for Ibn Sina, necessity and existence are identified, and Belo also points this out.<sup>51</sup> However, all such identifications work in two directions. One might hold that it means that everything in existence is necessary, or that necessity is to be understood as existence and its causal transfer. If the identification is restricted to the latter interpretation, the way will be opened to non-deterministic interpretations of Ibn Sina’s metaphysics. Belo’s study shows that it is unlikely that Ibn Sina himself would have accepted a non-deterministic interpretation of his metaphysics, but that should not prevent us from developing such interpretations.

## **Tychism**

Charles Sanders Peirce introduced the term *tychism* (from τύχη, chance) in his *Monist* articles of 1892. He proposed *tychism* in opposition to necessitarianism and determinism, but the examples he mentions of these views are mechanistic rather than metaphysical. Peirce defines the mechanical determinism he opposes as the doctrine that “the state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time (for a limitation to future time is indefensible.”<sup>52</sup>

Clearly one may adhere to the causal metaphysical determinism of Ibn Sina while rejecting the Laplacean mechanical determinism against which Peirce argues, for one could hold that although every event is necessitated by its cause, the mechanical laws governing events are imperfect and do not determine the states of things at all other times. Causal metaphysical determinism is compatible with the inscrutable evolution of events in accordance with divine necessitation that cannot be formulated by means of the laws of any mechanical theory. As Peirce defines mechanical determinism, a physical state of things at a given time will be sufficient to determine the physical state of things at any other time. Earman suggests that this definition might be relaxed by allowing the base that determines future events

to have a thick temporal duration instead of being an instantaneous time slice.<sup>53</sup>

One might even allow the base to be infinitely thick, assuming an eternal past bounded by the present. Even if we were to relax the definition of determinism in the ways suggested by Earman, none of them would be implied by causal metaphysical determinism, for necessary relations between cause and effect alone will not guarantee that there will be physical laws that govern these necessary causal relations so as to allow for the deduction of some events from the occurrence of others. This is consistent with the assumption of divine omniscience, since God may know all events immediately without any need to deduce some from others; and since God is beyond time, according to Ibn Sina, there is no question of deducing future events from past ones.

While Peirce takes tychism to be the denial of mechanical determinism, we could define enriched tychism to be the denial of any of the relaxed definitions of determinism proposed by Earman. According to enriched tychism, there is no state of events at some time  $t$  or times prior to and including  $t$ , and a set of physical laws from which one could deduce the description of events at all times after  $t$ .

Ibn Sina is a metaphysical determinist, however, not only in that he holds that everything but God is brought into existence by causes that necessitate their effects and that ultimately reach back to that whose existence is in itself necessary, which I have been calling causal metaphysical determinism, but more importantly, because he believes in an ideal predictive metaphysical determinism.

“If it were possible for some human to know all the temporal events on earth and in heaven, and their natures, he would comprehend the manner of all that will occur in the future.”<sup>54</sup>

Predictive metaphysical determinism is just as incompatible with tychism as mechanical determinism.

The key to Peirce’s tychism is his doctrine of continuity, synechism. According to synechism, there are gradual transitions from one state to another such that no definite value can be assigned to the point of transition. If no definite values can define states, then these states will be to that extent indeterminate, that is, they will not be determined for precise values by any set of physical laws. The importance of law in Peirce’s understanding of necessitarianism is made clear in the following passage:

“So there you have the three commonest forms of necessitarianism. A holds that every feature of all facts conforms to some law. B holds that the law fully determines every fact, but thinks that some relations of facts are accidental. C holds that uniformity within its jurisdiction is perfect, but confines its application to certain elements of phenomena.”<sup>55</sup>

Peirce insists that the laws in question must be “mechanical”. Regarding the debate he had with Paul Carus, in which Carus took a necessitarian position opposed by Peirce, Peirce insists that necessitarianism must be defined in terms of mechanical laws.<sup>56</sup> Peirce gives some reason to think that tychism might be compatible with causal metaphysical determinism in the following passage:

“But it is a degraded conception to conceive God as subject to Time, which is rather one of His creatures. Literal fore-knowledge is certainly contradictory to literal freedom. But if we say that though God knows (using the word knows in a trans-temporal sense) he never did know, does not know, and never will know, then his knowledge in no wise interferes with freedom.”<sup>57</sup>

There are a number of issues raised by this passage that one could quarrel about, such as whether or not free will and various forms of determinism are compatible; however, what is relevant to the question of tychism is that Peirce seems to think that it is needed to account for free will and that this sort of free will is compatible with divine transtemporal omniscience. It would not be a great leap to conclude from this that a transtemporal divine willing that causes all events to occur might also be compatible with tychism as Peirce understands it.

For Ibn Sina, there is no substantial difference between God’s knowledge of events and His willing them to exist.<sup>58</sup> Whatever is known by God is also willed by God, and conversely, God knows all that He wills. Just as divine creation of the world, or the exercise of the divine will is mediated through the intellects in the theory of emanation, likewise divine knowledge of the world is mediated by intelligible forms. So, if divine transtemporal knowledge of events is compatible with chance at the mechanical level, as Peirce suggests, then a transtemporal causally deterministic divine will of all events should also be compatible with tychism.

In order to attain a better understanding of what is and is not entailed by tychism, it will be useful to reflect on the notion of chance. Peirce defines tychism as the denial of mechanical determinism. Mechanical determinism is false, according to Peirce, because of chance. Chance, in turn, is defined in terms of a “fortuitous distribution”,<sup>59</sup> and a fortuitous distribution is one that does not conform to any fixed pattern or law. So, for example, if black and white balls of equal number are mixed in the proverbial urn, there is no definite pattern that determines for any particular draw whether a black or white ball will be picked.

The color of the ball picked is said to be a matter of chance. This is by no means to deny that the particular movements of the ball that led to its emerging from the urn were all governed by mechanically deterministic laws. In the context of the selection of the ball from the urn, however, these laws are not sufficient to determine whether or not a black or white ball would be selected. The laws would be the same in either case, but the conditions of their application are of a degree of complexity that prevents their applicability to determine the outcome.

This scenario calls for extensive commentary. Peirce mentions that one might maintain mechanical determinism and object that the apparent indeterminacy in the case of the urn is due to ignorance. Peirce offers no proof for real chance against the postulation of ignorance, but proposes that real chance should be considered as an hypothesis. There remain various ways to interpret this hypothesis, some of which may be enumerated as follows.

**1. Coincidental Chance.** Coincidence as the collision of two or more causal chains is discussed by Aristotle, Boethius, Ibn Sina, and many others with appeal to a variety of imaginative illustrative examples. It is considered at length by Belo, and more briefly by Peirce. Belo and Peirce, however, draw very different conclusions. According to Belo, since the event of a coincidence result from causally determinate chains leading to the Necessary, in Ibn Sina's theory, there is no real chance in such coincidences, and Ibn Sina's recognition of coincidence does not show that he would allow any exception to strict determinism. For Peirce, on the other hand, any two simultaneous events will usually be coincidental and only rarely related to one another by law. He imagines a dialogue between a necessitarian (A) and a believer in chance (B):

B replies, “I do not quite know that I am prepared to admit that the world ever was created. But even if it was, while the positive intentions of the Creator must have been fulfilled, we need not suppose that he expressly intended every relation between facts. If the Dowager Empress of China happens to have a fit of coughing and just at that moment I, on the other side of the globe, happen to take a piece of hoarhound candy, we need not suppose that this coincidence was any part of the Creator's plan.” A replies, “I believe that Providence overrules every fact and relation however trivial; and even if I were in your state of scepticism, I should still hold it to be inconceivable that any state of facts should fail to conform to some law. You cannot shuffle a pack of cards so that there is no mathematically exact relation between the arrangement before shuffling and the arrangement after shuffling.”<sup>60</sup>

In this dialogue, B appears to take a position directly opposed to that of Ibn Sina, although whether this is really so depends on how one understands what is meant by being “expressly intended”. Both parties, however, assume that the Creator's intentions can only be carried out through physical law, so that A holds that (unknown) laws govern coincidences, while B holds that since there are no such laws, coincidences could not have been part of the Creator's plan.

The position Peirce himself ascribes to, however, is neither that of A nor B, but one of an evolutionary development of laws that allow for the irregularities that constitute chance.<sup>61</sup>

If chance is defined in terms of coincidence, then it is clear that Ibn Sina accepts chance. The acceptance of chance in this sense, however, is not incompatible with mechanical determinism.

**2. Causally Indeterminate Chance.** One might interpret chance events as those that occur without any cause. According to Ibn Sina, the only thing whose existence does not have a cause is God. Everything that exists aside from God must get its existence directly or indirectly from God, and thus, have a cause. So, if chance events are understood as those that occur without causes, and any theory that does not allow for such chance events is considered deterministic, then Belo is absolutely right in concluding that Ibn Sina's metaphysics is deterministic.

However, even if he is a determinist in this sense, metaphysical determinism does not imply mechanical determinism; and even if Ibn Sina seems to have endorsed some form of mechanical determinism in

addition to his metaphysical determinism, the former is not implied by the latter. Ibn Sina is committed to metaphysical determinism because he accepts the principle that there can be no preponderance without a preponderant, that is nothing can pop into existence unless there is something to tip the scale of the possible entity's ontological status in favor of existence. Assuming with Ibn Sina that this causal chain of the successive tipping of scales starting with the Necessary and ending in each and every contingent being through the process of emanation, the question of whether there are laws governing the relation of past and future events remains open.

**3. Unpredictable Chance.** Epistemic considerations are commonly mixed with ontological claims. If a chance event is defined as one that is unpredictable, then an event that was a matter of chance during one century might be determined during another century when some theory is developed by means of which the event may be reliably predicted. A common means of escape from this sort of relativism is to appeal to what is in principle unpredictable, what would be unpredictable even if one had perfect knowledge of the initial conditions and the governing laws.

In the quotation above from Ibn Sina in which he states that with sufficient knowledge everything would be predictable, he appeals to knowledge of natures rather than to laws. It is not entirely clear how much of a difference if any this will make to the considerations that favor or oppose the existence of chance. If chance is defined in terms of unpredictability, it will be easier to defend the existence of chance, but harder to show that chance in this sense is incompatible with mechanical determinism or is relevant to the libertarian conception of freedom of will.

Even assuming perfect knowledge of initial conditions and laws or natures, however, unpredictability remains an epistemic concept and as such is subject to the limitations of the cognitive faculties. Events might be unpredictable for human beings even if they were perfectly knowledgeable in the relevant ways because working out the implications of the laws and initial conditions for some events will require a complexity of computation that could never be completed in a lifetime or even in millions of years. If one is inclined to respond to this sort of problem by shrugging off the difficulty as a mere practical limitation, there would be no reason to retain reference to unpredictability at all in the definition of chance, and one could refer directly to what is implied by the laws (or natures) and the initial conditions.

**4. Anomalous Chance.** The manner in which chance and indeterminism are understood by Peirce, Earman, and many others, is in terms of law. Hence, Earman refers to theories as deterministic when those theories require that possible worlds that agree with regard to some range of events will also agree with regard to other events. Given the wide range of views about natural laws, including regularity views, instrumentalist views, evolutionary views, and others, any definition of chance in terms of what is not determined by natural laws will be highly ambiguous. Some construe laws of nature as relations between universals, others take laws to be principles or axioms of best theories, and yet others are skeptics with regard to laws of nature.<sup>62</sup>

Since our concern is over how to combine divine causation through emanation with the absence of

mechanical or physical determinism, as indicated by chance, if there are no laws of nature, then, in a sense, everything occurs by chance. The absence of physical laws to describe what Ibn Sina calls natures, however, would not imply a denial of the thesis of divine causation. It may be that God creates the world through emanation in such a way that His necessary will determines that everything will be just as it is at every instant, although the temporal relations among events are not governed by any natural laws.

Likewise, if laws are understood as regularities meeting some conditions, so that chance is seen as irregularity in an otherwise orderly system, no amount of such chance would threaten the metaphysical causal determinism that makes every contingent existent necessary by its metaphysical cause. Finally, even if the laws of nature are interpreted in a metaphysically robust manner as necessary relations among universals, the fact that there are chance events that are not necessitated by the relations among the universals pertaining to the natures of the relevant substances would not imply that there is no metaphysical determination of the existences of these substances. The fact that it is a matter of chance with respect to the laws of nature that a given substance has a certain accident at some time does not mean that the existence of the accident is not derived through the causal chain of emanation that ultimately begins with God.

**5. Physically Possible Chance.** Laws of nature are sometimes described in terms of possible worlds. There are worlds that are logically possible but not physically possible. Logically possible worlds are those that are consistent with the laws of logic; and so physically possible worlds may be considered to be those that are consistent with physical laws. Regardless as to whether one accepts this sort of account of natural laws, one might, following Earman, for example, use this device to characterize determinism and chance. Earman, however, as we saw earlier, is concerned with how to assess whether or not various theories are deterministic.

If  $w_i$  and  $w_j$  are physically possible worlds, and they coincide with respect to  $Rm$ , then according to a deterministic theory, they will also coincide with respect to  $Rn$ , where  $Rm$  and  $Rn$  are regions covered by the theory. So, for example,  $Rm$  might be the present moment and  $Rn$  could be some future time. If the trajectories of all physical particles coincide in physically possible worlds  $w_i$  and  $w_j$  in region  $Rm$  then they will coincide at all other regions according to some forms of determinism. If, on the other hand, two possible worlds are alike up to some point in time, but diverge after that point, the trajectories from the point of divergence would be considered chance occurrences.

Now, suppose that we are not interested in whether or not a given theory is deterministic or not, i.e., whether or not a given theory allows for chance, but whether some events occur by chance or are determined. Events will be temporally determined if the coincidence of  $w_i$  and  $w_j$  with regard to events in region  $Rm$ , usually considered to be a time slice or some other limited temporal duration, entails that these worlds will be alike at  $Rn$ .

To illustrate this we might consider the observation of Peirce that deterministic laws only hold at some

level of scale, below which irregularities are found. Events may be said to be temporally determined above some scale level but indeterminate below that level. In such a case, if  $w_i$  and  $w_j$  are just alike with regard to events in region  $R_m$ , then  $w_i$  and  $w_j$  will be alike at  $R_n$  only above the quantum level, for example, and may diverge below that level.

If chance and determinism are understood in this way, it is not difficult to see how temporal determinism may be violated by chance events although the events are completely determined by the complete causes through which they obtain their existence. Suppose  $e$  is an event that occurs in  $w_i$  at  $R_n$  but that does not occur at all in  $w_j$ . Then  $e$  will be a chance event with regard to the temporal parameters indicated by  $R_m$  and  $R_n$ . If, however, we consider  $w_k$  and  $w_l$  to be alike with regard to the divine will, then since the divine will determines the entire world atemporally, there can be no question of the worlds coinciding for some period and then diverging. The event  $e$  will only be determined by its complete cause, which includes the initial act of divine will.

Perhaps the objection will be raised that although  $w_j$  is a logically possible world, it is not a really possible world, because in  $w_j$  the initial necessary act of divine will that eventuates necessarily in  $e$  is not present. To this we should reply that although  $w_j$  may not be theologically possible, given Ibn Sina's metaphysics, it is not merely a logically possible world, for it may also be physically possible. Consider that the arguments for considering God's creation of the actual world to be determined appeal to the assumption that this is the best world, the world that accords best with divine wisdom, beneficence, etc., and not merely that it would not be physically possible for God to create another world. God has sufficient power to create worse worlds that are physically and not merely logically possible.

Thus, it is consistent with Ibn Sina's theological determinism to allow the physical possibility of chance events to occur, where a chance event is one that occurs in some but not all possible worlds that are alike with respect to physical antecedents.

**6. Counterfactual Chance.** Closely related to the possible worlds approach to chance and physical law is that which describes ontological dependence in terms of counterfactual truths. Counterfactuals have been employed to distinguish accidental from nomological regularities. Since chance may be seen as an indeterminacy not governed by law, one may seek to avoid some of the controversies about laws of nature by skipping over them and defining chance directly in terms of counterfactuals. To say that  $e$  occurred by chance, on such an analysis, would be to claim that it is not the case that had  $e$  not occurred (contrary to fact), some relevant conditions would not have obtained. This makes the issue of whether or not  $e$  occurred by chance relative to the relevant conditions considered.

Suppose that  $e$  is the coming up heads of a tossed coin. It is not the case that had the coin turned up tails any of the previous events regarding the selection of the coin, the manner in which it was thrown, etc., would have had to have been any different than they were. The fact that no such factors would have had to have been different is part of what it means for the toss to have been fair. On the other hand, one may suppose that if the coin had come up tails, some factors would have been different, such

as the exact force with which it was flipped, the exact position on the coin to which the force was applied, how long it was in the air before it was caught, or other such matters.

Belo could argue that Ibn Sina's metaphysics is incompatible with chance in a realistic sense because if an event  $e$  had not occurred, that would mean that the world would have been other than it is. Given God's emanation of necessary causes of events, however, the world could not have been other than it is. Hence, nothing can occur by chance given Ibn Sina's theory. To the contrary, one could argue that this sort of argument only shows that Ibn Sina's theory is incompatible with the existence of chance in the sense of events that may or may not occur regardless of whether God wills them to occur. On behalf of the theological determinist, one could argue two points. First, any theistic view according to which nothing can happen unless God wills that it be so will be deterministic in this sense. Second, theological determinism of this sort does not require that one deny chance relative to some limited set of other factors.

**7. Inexplicable Chance.** Another way to approach the issue of chance would be through the concept of explanation. Although explanation, like prediction, is essentially an epistemic concept, it may help to clarify how theological determinism may be formulated in a manner consistent with physical chance. We might say that an event occurred by chance if its occurrence is inexplicable. The theological determinist has an explanation, however, for the occurrence of any event: it occurred because its occurrence is a part of the world that God chose to create. It really does not matter whether the theological determination of the event is understood in terms of direct command or a metaphysical theory of emanation, given that God willed an event to occur, it could not fail to occur. The question, however, will remain open as to whether the event has an explanation in terms of physical theory, and whether this explanation requires the event to have occurred.

Consider again the fair coin that turned up heads. Is there a physical explanation for why the coin came up heads? Yes, it came up heads because of the manner in which it was tossed and caught, and the laws governing mass and force and gravity. This explanation of the event, however, does not require that the coin came up heads. The same explanation could have been given had the coin come up tails.<sup>63</sup> Since there is no explanation of the event that requires it to have occurred, the event may be said to have occurred by chance, despite the fact that the event is explained. But in this case, we should say the same about the theological explanation. Whatever happens is the result of the will of God. But this explanation would be given even if events had occurred contrary to fact. Hence, the explanation does not require the coin that God willed to turn up heads to have turned up heads. If it had turned up tails, the same theological explanation would be given. In this sense, we could say that the result of the coin toss was a matter of chance, despite the fact that it is explained as the will of God.

In this regard, it may be useful to contrast the coin toss with the emanation of the first intellect, according to Ibn Sina's theory. Ibn Sina explains the emanation of the first intellect at length as resulting from divine simplicity and self-knowledge, along with several other metaphysical principles. The theory

requires the emanation of the first intellect. If we suppose, contrary to the fact assumed by Ibn Sina, that the first intellect was not produced, then we must abandon Ibn Sina's theory. We cannot use the theory to explain any relevant alternative. There is thus an important difference between the metaphysical explanation Ibn Sina's theory provides for the existence of the first intellect and that he provides for the event of the coin turning up heads.

## **Beyond Ibn Sina**

Even if various forms of tychism may be found to be consistent with Ibn Sina's metaphysical determinism, the question remains as to why bother. There are some various reasons to believe that chance exists. There are Peirce's reasons, and a number of others, the easiest of which is that science seems committed to chance, and there are no reasons to suggest that with the advance of science the need to deal with chance will be diminished. These reasons are not conclusive.<sup>64</sup> Nevertheless, it would seem desirable to have a metaphysics that at least can allow for the existence of chance, even if that metaphysics includes some form of theological determinism. So, most of this paper has been devoted to arguing in favor of the compatibility of physical indeterminism with theological causal determinism.

Of course, one might question theological determinism, too. There are a number of reasons to suspect that God's attributes do not constrain his choice of the possible world to be created so as to require the choice of this world. If, for example, there is an infinite continuum of possible worlds that God could create that might be ranked from better to worse, God's selection of the actual world cannot be explained as His choosing the best of all possible worlds, for whatever world He selected would be surpassed by another. So, if, contrary to Ibn Sina, one were convinced that God could have emanated a first intellect which would have resulted in a somewhat different world than the one we know, how much of Ibn Sina's metaphysics would have to be scrapped?

A metaphysics that retains major portions of Ibn Sina's system would be compatible with theological indeterminism. Assume, contrary to Ibn Sina, that God arbitrarily chooses to actualize a world, although the particular choice is not necessitated by His attributes or any other considerations. We could still maintain that everything that exists is either necessary or contingent with regard to its existence. We could also maintain that whatever is contingent derives its existence entire from its complete cause, and that the complete cause of any contingent entity must include God. We can also continue to maintain that there is a sense in which God's choice to initiate the process of emanation is necessary, in that given his wisdom and mercy, He could not have chosen to abstain from creation. Everything that exists will still be either necessary in itself or made necessary by another, in the sense that it exists independently of anything else or it obtains its existence from another. That which is necessary by another may be considered to be pushed into existence by its cause, and the ultimate cause in the series will continue to be necessary.

Ibn Sina accepts four uses of "necessary":

1. that which exists but does not obtain existence from another;
2. that which exists but obtains existence from another;
3. the relation of giving existence;
4. if what is supposed by  $\sim p$  is impossible, then  $p$  may be said to be necessary.

None of this requires us to assume that if God gives existence to what has come to be actual, then there is no possible world in which He does not give existence to this particular world. None of this requires us to assume that if some contingent being is necessary by another, then a proposition that asserts the existence of this contingency is necessary in the sense that there is no possible world in which God did not bring about this contingency. Causation may be indeterminate according to a possible worlds analysis, even for complete causes, for the complete cause only requires that the cause contains everything needed to bring about the effect in the actual world, not that this same cause will bring about the same effect in every other possible world. It is noteworthy that in this way an analysis of indeterminate causation can be elaborated along the lines of an Avicennan metaphysics without appeal to the more common strategy of differences in probabilities.

All of this may be retained from Ibn Sina's system while allowing that God could have chosen a different world as actual. Where this allowance contradicts Ibn Sina's view is that he considers the *wajib al-wujud* to be not only necessary in existence, but necessary in every aspect, including His actions.

To admit that there may be an element of arbitrariness or chance in divine action is not to claim that God's actions are not wise and beneficent; it is only to say that an appeal to divine wisdom and other attributes along with the limitations of logical possibility is insufficient to determine the exact course of the results of God's will and action. If there are two or more candidates for the outcome of divine will, the principle that there can be no preponderance without a preponderant will not prevent any either of them from being chosen, for it may be clear that the choice of either will be better than the choice of none.

The preponderant will be an act of divine will that is arbitrary with regard to the choice between the best candidates for actuality, but is not arbitrary with regard to the choice against other possibilities, and is not arbitrary with regard to the choice between acting or refraining to act. If God's choice is considered the preponderant that makes the difference that brings one possibility into existence rather than another with respect to some limited cases, this means that we would have to reject the principle that the choice between alternatives must always be determined by some feature of the alternative independent of whether or not it is chosen by virtue of which it merits being chosen. So, the modification of Ibn Sina's theological metaphysics that has been sketched here is one which would give significantly more prominence than Ibn Sina did to divine grace.

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[1.](#) Much of the first part of this section is taken verbatim from Legenhausen (2009).

[2.](#) This point is argued by Gutas (1988), 240–242., and is endorsed by Bertolacci (2006), 113.

[3.](#) Avicenna (2005), Bk. 4, Ch. 2, ¶24

[4.](#) Avicenna (2005), Bk. 1, Ch. 2, ¶11.

[5.](#) See the discussion by Marmura in Avicenna (2005), 383; Frank (1956), cited in Burrell (1986), 118.

[6.](#) Avicenna (2005), Bk. 1, Ch. 2, ¶15.

[7.](#) See Legenhausen (2007).

[8.](#) See Legenhausen (2004).

[9.](#) Davidson (1987), 306.

[10.](#) The argument is essentially that any form of circle of causes will require a further cause outside the circle. See Morewedge (1973), 59.

[11.](#) See Avicenna (2005), Bk. 1, Ch. 6, ¶16.

[12.](#) Goodman (1992), 66.

[13.](#) See Avicenna (2005), Bk. 1, Ch. 1, ¶17.

[14.](#) See, for example, Tegtmeier (2007); also see the discussion of Burrell (1986), 26, 29, 45, 67, 107. It seems that Fazlur Rahman was the first contemporary commentator to have pointed out the error in Ibn Rushd’s understanding of Ibn Sina’s claim that existence is accidental, in Rahman (1958); although Janssens points out that “Henry of Ghent, in the late thirteenth century, was aware of the fact that the restricted Aristotelian notion of ‘accidentality’ was surely not involved here, but a larger one.” Janssens (2006), i, 1–2. For a further defense of Ibn Sina in this regard see Pessin (2003).

[15.](#) The point is further elaborated in Pazouki (2007).

[16.](#) Goodman (1992), 69; Pazouki (2007), 170. While Pazouki and Burrell (1986), 35, claim that Ibn Sina’s distinction was an elaboration of one earlier stated by Farabi, Goodman points out that this claim (also found in Max Horten, Gilson, G. Hourani, and others) is based on an erroneous attribution of one of Ibn Sina’s essays to Farabi (*Risālat al-Fuṣūl fī al-Ḥikmah*). Goodman credits Leo Strauss, followed by A.-M. Goichon, Paul Krauss, Khalil Georr, and Shlomo Pines, with showing that the essay was by Ibn Sina and not Farabi. Goodman (1992), 117–118, n. 69.

[17.](#) Goodman (1992), 80.

[18.](#) See the first part of Al-Ghazālī (1997).

[19.](#) See Avicenna (2005), Bk. 4, Ch. 1, ¶10–11, Bk. 9, Ch. 1, ¶15; Miṣbāḥ Yazdānī (1999), 288–293.

[20.](#) 1015a33.

[21.](#) See Bertolacci (2006), 331–332.

[22.](#) This next section also draws heavily from the corresponding section of Legenhausen (2009).

[23.](#) Avicenna (2005), Bk. 1, Ch. 2, ¶16.

[24.](#) Burrell (1986), 14–18, 25, 29, 33–34.

[25.](#) Nasr (1978), 214.

[26.](#) Morewedge (1973), 272. Morewedge's criticism of Nasr is endorsed as "definitive" by Netton (1989), 166.

[27.](#) See Peters (1976), 377–382.

[28.](#) See Hasse (2008), and Duns Scotus (1994).

[29.](#) Avicenna (2005), Bk. 8, Ch. 5.

[30.](#) Duns Scotus (1994), 103.

[31.](#) Avicenna (2005), Bk. 9, Ch. 4, ¶4.

[32.](#) Burrell (1986), 29.

[33.](#) Avicenna (2005), Bk. 9, Ch. 4, ¶3.

[34.](#) Chittick (2007), 140–141.

[35.](#) For a survey and articles from various viewpoints, including those of several Christian evolutionists, see Dembski and Ruse (2006).

[36.](#) Belo (2007), 2.

[37.](#) See Blackburn et al. (2001), 33ff.

[38.](#) Belo (2001), 3.

[39.](#) Avicenna (2005), Bk. 10, Ch. 1, ¶7–12. In a recent book about divine purpose and chance in the context of the debate over "intelligent design", accidents are described as what happen "when two or more causal chains coincide." Bartholomew (2008), 21.

[40.](#) The terms "hard determinism" and "soft determinism" were coined by William James (1907).

[41.](#) See Fischer (2007), 3.

[42.](#) Belo (2001), 4.

[43.](#) Consider Belo (2001), 15: "Among the scholars defending Avicenna's indeterminism or affirmation of free will are A. Ivry, J. Janssens."

[44.](#) Belo (2001), 226.

[45.](#) 1019a 15 – 1020a 6.

[46.](#) Belo (2007), 227.

[47.](#) Belo (2007), 228.

[48.](#) Gelber (2004), 118.

[49.](#) See Ibn Sina (1994), Vol. 2, 435–437; Avicenna (2005), Bk. 10, Ch. 1, ¶6.

[50.](#) Belo (2007), 228.

[51.](#) Belo (2007), 102, 228. The point was also emphasized by the late Iranian philosopher, Ashtiyānī.

[52.](#) Peirce (1992), 299.

[53.](#) Earman (1986), 17.

[54.](#) Avicenna (2005), Bk. 10, Ch. 1, ¶13.

[55.](#) Pierce (1994), 6.90.

[56.](#) Peirce (1994), 6.592. I must admit that Peirce is not as clear on this matter as I would like, and speaks in general of a deterministic law of cause and effect as "mechanical".

[57.](#) Peirce (1994), 4.67.

[58.](#) Avicenna (2005), Bk. 9, Ch. 4, ¶4.

[59.](#) Peirce (1994), 6.75 ff.

[60.](#) Peirce (1994), 6.90.

[61.](#) "The party of the D's, of which I am myself a member, holds that uniformities are never absolutely exact, so that the variety of the universe is forever increasing. At the same time we hold that even these departures from law are subject to a certain law of probability, and that in the present state of the universe they are far too small to be detected by our observations. We adopt this hypothesis as the only possible escape from making the laws of nature monstrous arbitrary elements. We wish to make the laws themselves subject to law. For that purpose that law of laws must be a law capable of developing itself. Now the only conceivable law of which that is true is an evolutionary law. We therefore suppose that all law is the result of evolution, and to suppose this is to suppose it to be imperfect." Peirce (1994), 6.91

[62.](#) See Carroll (1994) and Carroll (2004).

[63.](#) Cf. Peirce (1994), 6.54–55.

[64.](#) See Percival (2006) for arguments against realism about chance.

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