**Hasdai Crescas and Spinoza on Actual Infinity and the Infinity of God’s Attributes**

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 *Introduction*

 The seventeenth century was an important period in the conceptual development of the notion of the infinite. In 1643, Evangelista Torricelli (1608-1647)—Galileo’s successor in the chair of mathematics in Florence—communicated his proof of a solid of infinite length but finite volume.[[1]](#endnote-1) Many of the leading metaphysicians of the time, notably Spinoza and Leibniz, came out in defense of actual infinity, rejecting the Aristotelian ban on it, which had been almost universally accepted for two millennia. Though it would be another two centuries before the notion of the actually infinite was rehabilitated in mathematics by Dedekind and Cantor (Cauchy and Weierstrass still considered it mere paradox),[[2]](#endnote-2) their impenitent advocacy of the concept had significant reverberations in both philosophy and mathematics.

 In this essay, I will attempt to clarify one thread in the development of the notion of the infinite. In the first part, I study Spinoza’s discussion and endorsement, in the Letter on the Infinite (Ep. 12), of Hasdai Crescas’ (c. 1340-1410/11) crucial amendment to a traditional proof of the existence of God (“the cosmological proof”[[3]](#endnote-3)), in which he insightfully points out that the proof does not require the Aristotelian ban on actual infinity. In the second and last part, I examine the claim, advanced by Crescas and Spinoza, that God has infinitely many attributes, and explore the reasoning that motivated both philosophers to make such a claim. Similarities between Spinoza and Crescas, which suggest the latter’s influence on the former, can be discerned in several other important issues, such as necessitarianism,[[4]](#endnote-4) the view that we are compelled to assert or reject a belief by its representational content,[[5]](#endnote-5) the enigmatic notion of *amor Dei intellectualis*,[[6]](#endnote-6) and the view of punishment as a natural consequent of sin.[[7]](#endnote-7) Here, I will restrict myself to the issue of the infinite, clearly a substantial topic in itself.

 *Part I: In Defense of the Actually Infinite*

 Spinoza’s twelfth letter—dated July 26th, 1663, and addressed to his friend, Lodewijk Meyer—is one of our most valuable texts for understanding the core of his ontology. From his late correspondence, we learn that he circulated copies of this letter even in this period,[[8]](#endnote-8) and we may thus assume that the views expressed in it reflect, more or less, his late thought as well. Among Spinoza’s friends, the letter was referred to as “the Letter on the Infinite,”[[9]](#endnote-9) and indeed this title reflects its main topic. In this letter, Spinoza develops a detailed taxonomy of infinities, and in the course of this taxonomy he also provides a concise exposition of some of his key notions and distinctions, such as the nature of numbers, the distinction between substance and mode, the threefold distinction among eternity [*aeternitas*], duration [*duratio*], and time [*tempus*], and the distinction between conceiving a thing by the intellect and conceiving it through the imagination.[[10]](#endnote-10)

 Toward the end of the letter, after announcing his satisfaction with his discussion (“unless I am mistaken, I have so explained all of the [errors and confusions concerning the Infinite] that I do not think any Problem about the Infinite remains which I have not touched on here or which cannot be solved very easily from what I have said”), Spinoza adds:

But in passing I should like to note here that the more recent Peripatetics have, as I think, misunderstood the demonstration by which the Ancients tried to prove God's existence. For as I find it in a certain Jew, called Rab Chasdai [*apud Judaeum[[11]](#endnote-11) quendam, Rab Ghasdaj vocatum*], it runs as follows: if there is an infinite regress of causes, then all things that are will also have been caused; but it does not pertain to anything which has been caused, to exist necessarily by the force of its own nature; therefore, there is nothing in Nature to whose essence it pertains to exist necessarily; but the latter is absurd; therefore, the former is also. *Hence the force of this argument does not lie in the impossibility of there being an actual infinite* [*actu infinitum*] *or an infinite regress of causes, but only in the supposition that things which do not exist necessarily by their own nature are not determined to exist by a thing which does necessarily exist by its own nature* [NS: and which is a cause, not something caused].[[12]](#endnote-12)

Spinoza had already criticized those who “deny the actual Infinite” a few pages earlier in the letter, claiming that this denial results from confusion and ignorance.[[13]](#endnote-13) It is also worth noting that in Leibniz’s copy of the letter, Spinoza’s criticism is directed at the “Peripatetics” [*Peripatetici*] rather than the “*recent* Peripatetics” [*Peripatetici recentiores*] as in the *Opera Posthuma*.[[14]](#endnote-14) One way or another, it is clear that the target of Spinoza’s criticism is the argument for the existence of a first cause from the impossibility of an infinite chain of causes and effects. This argument, which can be traced back to Aristotle,[[15]](#endnote-15) had a wide circulation among medieval philosophers.[[16]](#endnote-16) Intriguingly, Descartes seems to have deemed it valid.[[17]](#endnote-17) The argument is stated succinctly by Maimonides. In the introduction to the second part of the *Guide of the Perplexed*, he lists twenty-five premises required for the proof of God’s existence, unity, and incorporeality, the third of which reads: “The Third Premise: The existence of causes and effects of which the number is infinite is impossible, even if they are not endowed with magnitude.”[[18]](#endnote-18)

 Crescas discusses Maimonides’ Third Premise at three different points in his *Light of the Lord*. In Book I, Part I, Chapter 3, he provides an initial exposition of the argument. Already at this point he notes:

It is because of [the] relation between cause and effect that an infinite series of causes and effects is impossible [*nimna*]. The argument may be stated as follows: An effect by its own nature [*bivhinat atzmo*] has only possible existence [*efshari ha-metziut*], requiring therefore a determinant [*makhria*] to bring about the preponderance of existence over non-existence, which determinant constitutes its cause. Now it must inevitably follow that in the aggregate [*klalam*] of an infinite series of causes and effects either all of the members of the series would be effects or some of them would not be effects. If they were all effects, they would all have possible existence. They would require some determinant to bring about the preponderance of existence over non-existence, and so they would necessarily presuppose the existence of a causeless cause [outside the series].[[19]](#endnote-19)

The crux of the argument here is that an infinite series of causes and effects, which are each merely contingent (having only “possible existence”) in themselves, constitutes an aggregate which is equally contingent. Without a cause whose existence is necessary in itself, the actualization of the entire infinite chain remains unexplained. In other words, an infinite chain of causes and effects which are merely possible can just as well be actualized as non-actualized, and in order to explain the actualization of the chain, we must ground it in an existing thing which is not merely possible.

 Crescas’ exposition of Maimonides’ Third Premise is far more elaborate than the original, and it also switches the issue from the impossibility of an actually infinite chain (which is the main point of Maimonides’ argument), to modal considerations about what can explain the actualization of entities that are merely possible (in themselves).[[20]](#endnote-20) From Crescas’ later discussions of this argument,[[21]](#endnote-21) we learn that his presentation relies heavily on a commentary on Maimonides’ twenty-five premises by a Persian Islamic philosopher of the late thirteenth century, Muhammad ibn Muhammad al-Tabrizi.[[22]](#endnote-22)

 An even closer examination of Crescas’ presentation of Maimonides’ Third Premise seems to show that Crescas is not only diverting the focus of the argument from the impossibility of the actually infinite, but that he in fact *assumes that actual infinity is possible*. Recall his discussion (in the passage above) of the “the aggregate of an infinite series of causes and effects.” An opponent of actual infinity would reject outright the possibility of aggregating an infinite series, claiming that such a process of aggregation could never be completed. By treating the aggregation of an infinite series as not in the least problematic, Crescas reveals that he has parted ways with the Aristotelian ban on actual infinity.

 Following his reconstruction of Maimonides’ Third Premise, Crescas notes that Maimonides rejected actual infinity only “with reference to objects which have order either in position, as magnitudes, or nature, as causes and effects.”[[23]](#endnote-23) Crescas then contrasts this view of Maimonides’ with Averroes’ comprehensive ban on actual infinity:

Averroes, however, finds it to be impossible even with reference to objects which have no order whatsoever, for he maintains that actual number [*ha-mispar ba-foal*] must necessarily be finite. He reasons as follows: Every actual number is something actually numbered [*safur ba-foal*], and that which is actually numbered must be either even or odd, and that which is even or odd must necessarily be finite.[[24]](#endnote-24)

Crescas does not seem to be impressed by Averroes’ argument. He responds briefly and firmly:

For our own part, we will say this with regard to Averroes’ argument: While indeed the division of number into odd and even is true and unavoidable, still infinite number, not being limited [*mugbal*], is not to be described by either evenness or oddness.[[25]](#endnote-25)

Crescas’ point is simple: the distinction between odd and even numbers is not applicable to an infinite number.

 Crescas’ second discussion of Maimonides’ Third Premise appears in Book I, Part II, Chapter 3 of *Light of the Lord*. This chapter relies on the initial exposition [*beur*] of the topic (discussed above), and its title describes it as an inquiry [*haqira*] into the issue. Crescas begins by stating that “the argument framed here by Altabrizi, which has been discussed by us in the first chapter of the first part… is not altogether sufficient.”[[26]](#endnote-26) Specifically, he argues that it is *possible* for a cause to have an infinite number of effects. To prove this point he supplies the following argument:

It must be admitted that that the emanation [*atzilut*] of an infinite number of effects from one single cause would not be impossible, if it were only possible for a single cause to be the source of emanation of more than one effect. And so, inasmuch as it is evident that there can be an infinite number of effects, despite their all being dependent upon a common cause, it must follow that the assumption of a common cause for more than one effect would not make it impossible for those effects to be infinite in number. This being the case, assuming now a series of causes and effects wherein the first is the cause of the second, and the second of the third and so for ever, would that I knew why, by the mere assumption of a common cause for the series as a whole, the number of causes and effects within that series could not be infinite.[[27]](#endnote-27)

Crescas’ argument is straightforward. It is commonly accepted (“it is evident”) that one cause (e.g., God) can have infinitely many *immediate* effects, so that each of the effects depends immediately on the cause. But if the cause can bring about infinitely many immediate effects, there is no reason why it cannot bring about the same infinity of effects ordered in a causal chain (the first being the cause of the second, and the second of the third, and so on).

 Notice that in the first sentence of the quote above Crescas attempts to bypass the question of whether it is “possible for a single cause to be the source of emanation of more than one effect.” But this scenario is problematic: if one simple (i.e., having no parts) cause brings about (without any aid) more than one effect, there would be no possible explanation for the difference between the effects (since it is the *same* cause which presumably brings about *different* effects).[[28]](#endnote-28) Crescas is keenly aware of this problem (which would haunt anyone who rejects the possibility of brute facts), yet he rightly notes that it has nothing to do with the question of the possibility of the actually infinite. Thus, he suggests that we bracket this question and proceed on the *premise* that such a scenario is possible, in which case, he argues, we have no reason (“we must admit”) to deny that a single cause may bring about infinitely many effects.

 Summarizing his inquiry [*haqira*] into Maimonides’ Third Premise, Crescas concludes:

What this premise [*haqdama*] really means to bring out, and what conclusion therefore is actually needful for our purpose, is the existence[[29]](#endnote-29) of a first cause, which is uncaused by anything else, *regardless of the view whether its effects*, when they are one the cause of the other, are finite or infinite.[[30]](#endnote-30)

Crescas’ third discussion of Maimonides’ Third Premise appears in *Light of the Lord* I.III.2, where he presents his own proof of God’s existence. As one can see from the excerpt below, this is simply an amended version of Maimonides’ Third Premise, which incorporates his critique of the rejection of actual infinity:

Whether causes and effects are finite or infinite, there is no escaping [*lo yimalet*] that there must be some cause of the entirety of them. For if all were effects they would be of possible existence [*efshari ha-metziut*] with respect of themselves, and would require something to give preponderance to their existence over their non-existence, and this is the cause of them all that gives preponderance to their existence, and this is God, may he be blessed.[[31]](#endnote-31)

With Crescas’ three discussions before our eyes, we can now understand Spinoza’s enthusiastic endorsement (in Ep. 12) of his argument. Not only does Crescas provide powerful arguments in favor of actual infinity (a position Spinoza strongly supports), but he also motivates these arguments by a strict rationalism, which requires a reason for the existence of any being. Spinoza would rely on a similar stipulation (“for each thing there must be assigned a reason, or cause, as much for its existence as for its non-existence”[[32]](#endnote-32)) in his own proof of the existence of God in *Ethics* Ip11dem. It is therefore not at all surprising that, upon reading Spinoza’s presentation of Crescas’ argument, Leibniz noted:

This is rightly observed, and agrees with what I am accustomed to saying, that *nothing exists but that for whose existence a sufficient reason can be provided* [*nihil existere, nisi cuius reddi possit ratio existentiae sufficiens*]. It is easily demonstrated that this sufficient reason cannot be in the series of causes.[[33]](#endnote-33)

Don Garrett has insightfully pointed out that Spinoza’s argument for God’s existence in Ip11 merges elements from both the ontological and cosmological arguments.[[34]](#endnote-34) The same point seems to be true about Crescas’ argument as well. Under the influence of Avicenna,[[35]](#endnote-35) Crescas reoriented the cosmological argument with the aim of proving the existence of a being which is in itself necessary, i.e., a being whose essence involves existence.

 My discussion of Crescas has focused on his reformulation of a common argument for the existence of God, an argument which, in his view, did not depend on the rejection of actual infinity. Though I have briefly noted his critique of Averroes’ argument against the possibility of an infinite number, I have not discussed most of the aspects of his broader defense of actual infinity, whether in terms of space, time, or the quantity of worlds.[[36]](#endnote-36) It seems that at least part of Crescas’ motivation for rejecting the ban on actual infinity was the realization that the Aristotelian assertion of the uncountability[[37]](#endnote-37) of actual infinity might not hold in the case of an infinite counter. Thus, Crescas writes:

If God knows numbers, since number can be added to without end, then His knowledge extends to an infinity of numbers. If he does not know all of them, there must of necessity be a bound which he does not know. But then the question remains—why is it that he knows the numbers to that bound but does not know greater ones? Have weariness and fatigue befallen His knowledge?[[38]](#endnote-38)

A full elucidation of Crescas’ defense of actual infinity (like a systematic clarification of Spinoza’s support of it) would require a more detailed and lengthy discussion than cannot be carried out here. In the remainder of this paper, I would like to point out and “inquire” into (to use Crescas’ term) another important doctrine, closely related to this one, which Crescas and Spinoza share: the view that God has infinitely many attributes.

 *Part II: Why Does God Have Infinitely Many Attributes?*

 At the beginning of the *Ethics*, Spinoza defines God as a substance of infinitely many attributes:

Idef6: By God I understand a being absolutely infinite, that is, a substance consisting of an infinity of attributes, of which each one expresses an eternal and infinite essence [*Per Deum intelligo ens absolute infinitum, hoc est, substantiam constantem infinitis attributis, quorum unumquodque aeternam, et infinitam essentiam exprimit*].

In Ip16dem Spinoza paraphrases this definition: “The divine nature has absolutely infinite attributes (by Def. 6), each of which also expresses an essence infinite in its own kind.” Still, at the beginning of Part Two of the *Ethics*, he argues that we know only two attributes: extension and thought.[[39]](#endnote-39) Many of Spinoza’s readers have puzzled over this tension, wondering why human knowledge of the infinite attributes of God is so severely limited. I have recently shown that Spinoza has solid, principled reasons for maintaining this view, which he states explicitly in Ep. 64 and Ep. 66.[[40]](#endnote-40)

 A way of resolving this tension has been championed by Jonathan Bennett, who famously argued that for Spinoza ‘infinite’ is a synonym for ‘all.’ When Spinoza says that God has infinite attributes, he means only that God exists in every possible way. This does not entail that God exists other than as extended and as thinking, i.e., that there are more than two attributes.[[41]](#endnote-41) I have argued elsewhere that this claim of Bennett’s is deeply misleading. Both in the *Ethics* and in other texts, Spinoza states numerous times that there are attributes that are unknown to us. Furthermore, he has strong theoretical reasons for asserting that there are infinitely many attributes apart from thought and extension.[[42]](#endnote-42) I will not repeat my arguments here, but I would like to point out briefly three ways in which the Crescas-Spinoza nexus is directly relevant to the question of the infinity of the attributes.

 First, one of Bennett’s arguments against interpreting the infinity of attributes as implying the existence of more than two attributes is that there was no philosophical or theological tradition stating that God has infinitely many attributes, and thus that Spinoza was under no pressure from tradition to assert this view.[[43]](#endnote-43) I am not impressed by this argument, since Spinoza’s philosophy is not particularly loyal to the “philosophical tradition” (whatever one might mean by this expression). Still, it is clear that Spinoza *was* well acquainted with a philosophical and theological tradition that ascribes infinitely many attributes to God, though it was not the tradition under Bennett’s spotlight. In his discussion of the divine attributes in the *Light of the Lord*, Crescas develops in great detail the claim that God has infinitely many attributes and that each of his attributes is infinite.[[44]](#endnote-44) Given Spinoza’s discussion of Crescas’ conception of infinity, it is highly unlikely that he was unaware of this claim, especially since Crescas was not the only medieval Jewish thinker to advance such an argument.[[45]](#endnote-45)

 Second, we have already seen that in Ep. 12 Spinoza explicitly defends the notion of *actual* infinity against the Aristotelian ban on it. It goes without saying, I believe, that actual infinity cannot equal two (or any finite number). Could Spinoza, then, recognize an infinity which is beyond any finite number (in Ep. 12), and yet conceive God’s infinity (in Idef6) as being of a lower kind? This seems highly unlikely, given Spinoza’s ascription of *absolute* infinity to God in Idef6.

 Third, the genuine importance of Bennett’s argument against the infinity of attributes lies in the fact that it forces us to elucidate *why* Spinoza defines God as having infinitely many attributes. Incidentally, Spinoza provides an explicit explanation for his claim in Ip10s:[[46]](#endnote-46)

So it is far from absurd to attribute many attributes to one substance. Indeed, nothing in nature is clearer than that each being must be conceived under some attribute, and *the more reality or being* [*realitas aut esse*] *it has, the more it has attributes* which express necessity, *or* eternity, and infinity. And consequently there is also nothing clearer than that *a being absolutely infinite must be defined (as we taught in Def. 6) as a being that consists of infinite attributes*, each of which expresses a certain eternal and infinite essence.[[47]](#endnote-47)

According to this passage, there is a correlation between a thing’s degree of reality and its attributes (EIp9). Nothingness has no reality and hence no attributes.[[48]](#endnote-48) Finite things have a finite degree of reality, and thus have a finite number of attributes, and the absolutely infinite being is infinitely real, and thus has infinitely many attributes.

 Still, one might perhaps argue that the above correlation commits Spinoza to the claim that God has *more* attributes (and thus is more real) than finite things, but that he need not have *infinitely many* attributes in order to be more real than all finite things; for this, it would suffice for him to have *one* attribute more than the most real finite being.[[49]](#endnote-49)

 In order to address this argument, we will briefly revisit Crescas’ discussion of the infinity of God’s attributes. Crescas develops his view as an alternative to and critique of Maimonides’ negative theology, with its assertion that one should ascribe no essential attributes to God.[[50]](#endnote-50) Despite his critique of Maimonides’ position, there is one element of Maimonides’ theory which Crescas preserves: the claim that God is incommensurable with finite things.[[51]](#endnote-51) Crescas’ God has infinitely many attributes, but is still incommensurable with finite things, since there is no common measure between the finite and the infinite. Thus, Crescas writes: “It is impossible to be similar to God by having a common measure, since there is no relation [*yahas*] and measure [*erech*] between the infinite and the finite.”[[52]](#endnote-52)

 If we add the claim that (1) there is no common measure between the finite and the infinite to the claim that (2) the more reality a thing has, the more attributes belong to it (*Ethics* Ip9), we can fully explain Spinoza’s reasons for defining God as having infinitely many attributes. Were God to have any finite number of attributes *n* that is greater than the number of attributes *m* belonging to the most real finite being, there would still be a common measure and ratio between God and finite things. In fact, n/m would be the precise representation of the relation between God and the most real finite thing.

 Do we have any textual evidence showing that Spinoza accepts the claim that there is no common measure between God and finite things? We do. Spinoza asserts this claim in various formulations in several places,[[53]](#endnote-53) the most explicit of which is Ep. 54. This letter, moreover, belongs to Spinoza’s very late period (its conjectured date is September, 1674), and thus cannot be dismissed as an early, “immature,” claim.

This do I know, that between the finite and the infinite there is no relation [*nullam esse proportionem*]*,* so that the difference between God and the greatest and most excellent created thing is no other than between God and the least created thing.[[54]](#endnote-54)

 *Conclusion*

 In this paper I have examined one thread in the development of the concept of the infinite. In the first part we studied Crescas’ and Spinoza’s advocacy of actual infinity, and explained the importance of Crescas’ Avicennian proof of the existence of God for Spinoza’s philosophical project as a whole. Specifically, we showed that both Crescas and Spinoza allow for the aggregation of infinite series, and that both work within the broadly Avicennian view that requires a reason for both the existence and non-existence of things. In the second part, we studied the similarities between Crescas’ and Spinoza’s views of God as having infinitely many attributes, and explained Spinoza’s motivation for defining God as a substance consisting of infinitely many attributes.

 Of the many subsequent readers of Spinoza’s “Letter on the Infinite”, we should note in particular Georg Cantor, who described the letter as “highly important.”[[55]](#endnote-55) Obviously, this is not the right place to discuss Cantor’s engagement with Spinoza. Still, let me note that the flow of thought from mathematics to metaphysics and back seems to be quite substantial, when we consider the issue of infinity. According to Hermann Weyl, one of the towering figures of modern mathematics and its philosophy, “mathematics is the science of the infinite.”[[56]](#endnote-56) While Spinoza would never concede to having the infinite relegated to mathematics,[[57]](#endnote-57) I suspect that both he and Cantor understood that neither field alone could explain the development of this extraordinary notion.

NOTES

1. See Mancosu, 1996, 130-139. I am indebted to John Brandau and John Morrison for their comments on earlier drafts of this paper. Special thanks to Meir Neuberger and Rabbi Dovid Katz, my Thursday night Crescas *havrusa*. [↑](#endnote-ref-1)
2. See Boyer and Mezbach, 1991,563-568. [↑](#endnote-ref-2)
3. By “cosmological proof” I refer to an argument for the existence of a first cause as a requirement for the intelligibility of the existence of the world. [↑](#endnote-ref-3)
4. Crescas, *Or ha-Shem*, II.5.2; Crescas 1990, 209-210. [↑](#endnote-ref-4)
5. Crescas, *Or ha-Shem*, II.5.5-6; Crescas 1990, 219-225. Cf. Harvey 2010b, 109. [↑](#endnote-ref-5)
6. See Harvey, 1998, 103-104. [↑](#endnote-ref-6)
7. Crescas, *Or ha-Shem*, II.5.3; Crescas 1990, 213. [↑](#endnote-ref-7)
8. Spinoza, Ep. 81 (Spinoza 2002, 956). Leibniz too had a copy of this letter. There are a few minor divergences between Leibniz’s copy and the version of the *Opera Posthuma* (both versions are reproduced in Gebhardt’s critical edition). The *Opera Posthuma* transliterates Cresca’s Hebrew given name, חסדאי, as Ghasdai, whereas in Leibniz’s copy it is Jaçdai. See Leibniz 2001, 115. A more crucial discrepancy will be discussed shortly. For a helpful discussion of Leibniz’s comments on Ep. 12, see Laerke 2011b, 63-68. [↑](#endnote-ref-8)
9. Spinoza, Ep. 80 (Spinoza 2002, 955). [↑](#endnote-ref-9)
10. On Spinoza’s understanding of numbers in Ep. 12, see Melamed 2000. [↑](#endnote-ref-10)
11. The adjective *Judaeum* is quite rare in Spinoza, who usually prefers to speak of “the Hebrews” or “Pharisees.” [↑](#endnote-ref-11)
12. Ep. 12; Spinoza 1925, IV.61-2; Spinoza 1985, 205. [↑](#endnote-ref-12)
13. Ep. 12; Spinoza 1925, IV.59; Spinoza 1985, 204. [↑](#endnote-ref-13)
14. See Leibniz 2001, 114. Cf. note 8 above. [↑](#endnote-ref-14)
15. See Aristotle, *Metaphysics*, a 2 (994a). Cf. *Physics*, VIII.5 (255a18). For Aristotle’s rejection of actually infinite magnitude, see *Physics*, III.5-8. [↑](#endnote-ref-15)
16. Wolfson 1929, 482-3. [↑](#endnote-ref-16)
17. In the First Set of Replies Descartes notes that “there is no possibility of an infinite regress” of causes and effects if they all occur simultaneously (Descartes 1964-76, VII.111). [↑](#endnote-ref-17)
18. Maimonides, *Guide*, II, Introduction; Maimonides 1963, 235. [↑](#endnote-ref-18)
19. Wolfson 1929, 221-223. [↑](#endnote-ref-19)
20. Crescas here follows Avicenna, according to whom a possible being is one whose essence neither necessitates its existence nor rules it out. Such a being is possible in itself, and must have an (external) cause sufficient for its existence or non-existence. See Avicenna, *The Metaphysics*, I.6; Avicenna 2005, 31. [↑](#endnote-ref-20)
21. Crescas, *Or ha-Shem*, I.2.3; Wolfson 1929, 225. [↑](#endnote-ref-21)
22. Al-Tabrizi’s discussion is fundamentally influenced and shaped by the Avicennian distinction between possible and necessary existence. Al-Tabrizi’s commentary has been translated twice into Hebrew. The first translation is from the mid-fourteenth century. The second has recently been transcribed from manuscript by Hayoun (see Hayoun 1996). For a helpful discussion of al-Tabrizi’s influence on Crescas’ physics, see Langermann (2012). [↑](#endnote-ref-22)
23. Crescas, *Or ha-Shem*, I.1.3; Wolfson 1929, 223. [↑](#endnote-ref-23)
24. Crescas, *Or ha-Shem*, I.1.3; Wolfson 1929, 223. [↑](#endnote-ref-24)
25. Crescas, *Or ha-Shem*, I.1.3; Wolfson 1929, 223. [↑](#endnote-ref-25)
26. Crescas, *Or ha-Shem*, I.2.3; Wolfson 1929, 225. [↑](#endnote-ref-26)
27. Crescas, *Or ha-Shem*, I.2.3; Wolfson 1929, 225. [↑](#endnote-ref-27)
28. Maimonides discusses this problem in *Guide* II.22; Maimonides 1963, 317. For a detailed discussion of the same issue in Spinoza, see Melamed 2013a, 116-119, and Melamed 2013b, 212-214. [↑](#endnote-ref-28)
29. I have slightly amended Wolfson’s translation in order to adhere to the literal Hebrew. [↑](#endnote-ref-29)
30. Crescas, *Or ha-Shem*, I.2.3; Wolfson 1929, 229. Italics added. [↑](#endnote-ref-30)
31. Crescas, *Or ha-Shem*, I.3.2; Crescas 1990, 98-99. The translation is by Zeev Harvey; see Harvey 1998, 97. [↑](#endnote-ref-31)
32. It is not clear to me whether Crescas would require a reason for the *non-existence* of a thing. Al-Tabrizi provides an interesting argument in favor of the view that non-existence does *not* require a cause: “… since it is the role of the cause to determine the preponderance of existence over non-existence, and the absent does not exist at all, therefore, it does not require a cause” (Hayoun 1996, 220. My translation). [↑](#endnote-ref-32)
33. Leibniz 1923- , VI.iii.283; Leibniz 2001, 117. Cf. Laerke 2011b, 63. [↑](#endnote-ref-33)
34. See Garrett 1979, 198, 223. [↑](#endnote-ref-34)
35. See Harvey 1998, 90-91. [↑](#endnote-ref-35)
36. See Crescas, *Or ha-Shem*, I.2.1 and III.1.4; Crescas 1990, 65-66 and 302-303. Cf. Harvey 2010b, 59-61. [↑](#endnote-ref-36)
37. In the colloquial, rather than the Cantorean, sense of the term. [↑](#endnote-ref-37)
38. Crescas, *Or ha-Shem*, II.1.3; Crescas 1990, 136-137. The English translation is by Rabinovitch 1970, 228. According to Rabinovitch, Crescas’ inquiries into the qualities of infinite magnitudes anticipated “the foundation of transfinite arithmetic” (1970, 224). Cf. Levy 1987, 212. [↑](#endnote-ref-38)
39. *Ethics* IIax5: “We neither feel nor perceive any singular things, except bodies and modes of thinking.” [↑](#endnote-ref-39)
40. See Melamed 2013, 156-165. [↑](#endnote-ref-40)
41. Bennett 1984, 76. [↑](#endnote-ref-41)
42. Melamed, Forthcoming b, §2. [↑](#endnote-ref-42)
43. Bennett 1984, 77. [↑](#endnote-ref-43)
44. Crescas, *Or ha-Shem*, I.3.3; Crescas 1990, 106-108. Cf. Harvey 2010b, 91-94, and Levy 1987, 204-207. [↑](#endnote-ref-44)
45. See Harvey 2010, 94. Another philosopher who argued that God has “countless” attributes which are unknown to us and with whom Spinoza seems to be quite familiar is Descartes (1964-76, III.394). [↑](#endnote-ref-45)
46. It is quite rare for Spinoza to try to motivate his definitions. [↑](#endnote-ref-46)
47. This passage is a verbatim quote from Ep. 9 (IV/44-45). Italics added. [↑](#endnote-ref-47)
48. “The more attributes I attribute to a being the more I am compelled to attribute existence to it; that is, the more I conceive it as true. It would be quite the contrary if I had feigned a Chimaera, or something like that” (Ep. 9| IV/45/22-25). [↑](#endnote-ref-48)
49. Cf. Bennett 1984, 76-77. [↑](#endnote-ref-49)
50. Maimonides, *Guide*, I 53-55. [↑](#endnote-ref-50)
51. Crescas, *Or ha-Shem*, I, 3, 3; Crescas 1990, 100-106. Cf. Harvey 2010b, 88-96. [↑](#endnote-ref-51)
52. Crescas, *Or ha-Shem*, I, 3, 3; Crescas 1990, 106. [↑](#endnote-ref-52)
53. I take the last paragraph of E1p17s as well as E2p10 to make this point, though establishing this reading demands a close analysis of these texts. [↑](#endnote-ref-53)
54. Spinoza 1925, IV.253; Spinoza 2002, 899. [↑](#endnote-ref-54)
55. Ewald 1996, II 890. [↑](#endnote-ref-55)
56. Weyl 2012 (1930), 17. [↑](#endnote-ref-56)
57. For Spinoza mathematics is the study of finite quantity. See Melamed 2000. [↑](#endnote-ref-57)