

GUIDE 1:73
THE TWELVE PROPOSITIONS OF KALĀM THEOLOGY

PREFACE TO THE KALĀM SECTION OF THE GUIDE

In the “Dedicatory Letter” preceding his Introduction to the Guide, we hear that Maimonides’ pupil, Rabbi Joseph, had asked to learn the theological system of the Kalām, its method, and whether it was a philosophical method. Besides this, Maimonides had his own reasons to guide his rabbinic audience through a close study of Muslim theology.

Maimonides had to prove, as best he could, four necessary beliefs: the existence, unity, and incorporeality of God, and His creation of the universe from nothing (1:71). This creed crystallizes the first four of the thirteen principles of true belief (as found in later editions of his early work, *Commentary on the Mishnah*). One who seeks to attain active intellect must be able to articulate his conviction of the truth of these four principles. They are the keys to the divine science (אלאלם אלאלאה).

The problem was that the Aristotelians accepted only the first three. The Mutakallimūn (Kalām theologians), accepted all four, but in the wrong order. They tried to prove that the world could not be eternal, in order to show that God must have created it. Maimonides felt that their methodology was fundamentally flawed, and not just because no one could prove that the world was created. Their method made the existence of God depend on the creation of the world.

The following four chapters carry out Maimonides’ program by exposing the flaws in the Kalām system. This set the stage for his grand debate with the philosophers over creation and providence, *Maaseh Bereshit* and *Maaseh Merkava*, in Book 2 of the Guide.

In Guide 1:73, he portrayed the Twelve Propositions that undergird Kalām theology. In 1:74 he attacked their “proofs” for creation. In 1:75 and 1:76, he did the same, very reluctantly, for their demonstrations of divine unity and incorporeality. Reluctantly, because he agreed with their conclusions, but understood that their proofs undermined those very conclusions.

INTRODUCTION: THE KALĀM’S PARADOXICAL WORLD

The last chapter portrayed Maimonides’ unfamiliar world. This chapter contrasts the even stranger world of the Kalām.

We do not know why Zeno of Elea, the fifth century pre-Socratic philosopher, devised his famous paradoxes, for we do not have his writings. Perhaps he meant them as an argument *ad absurdum* to establish the Parmenidean conclusion that everything is indivisibly and unchangeably one. These were typical concerns of pre-Socratic physics: was the *all* one or many? Can something change or even move without negating itself? Zeno’s paradoxes seem to demonstrate the absurdity of divisibility, multiplicity, and change across the dimensions of time, space and motion.

Zeno’s Achilles is faster than the stolid tortoise, so we give the tortoise a head start; Achilles must catch up, but the tortoise keeps going; Achilles runs, quickly covering the distance, but the tortoise, never stopping, stays ahead, no matter how fast Achilles runs. An arrow must always take up its own space as it flies. Therefore, it cannot move in that moment or it will not be in its own space. Thus, it never actually moves.

Aristotle responded by proving, in *Physics* 6:1-3; that time, space and motion must all be either ultimately divisible, or ultimately indivisible. Either way, motion, time and space are correlative, a continuum. Zeno’s paradoxes disrupt the continuum.

If all things were composed of indivisible atoms separated by equal spaces, as in Kalām physics, motion becomes the movement of one atom to another in one undivided moment of undivided motion, and all at the same speed. No runner could ever outrun another, nor could any motions actually cross more than one atom's length of space.

The Kalām created a physics that adopted the absurdity of Zeno's paradoxes as reality.

What went wrong?

The Kalām doctors were driven to prove God's miraculous creation and maintenance of the universe. They were perplexed by Aristotle's assertion that the universe always existed and that God was just a part of it. The Kalām responded by exaggerating divine omnipotence until reason was stunned silent. Allah's creativity is always miraculous, unpredictable, beyond understanding. It is capable of realizing anything imaginable, irrespective of whether it is actually possible. This omnipotence even comes to self-denial and destruction, as in the creation of the vacuum, a place without God or His creations. Maimonides' unstated concern was that the Kalām propositions had already had an impact on Jewish thought, and would continue to do so (Wolfson, *Repercussions of the Kalām in Jewish Philosophy*, Harvard, 1979).

A HISTORICAL NOTE

H. A. Wolfson, in his two books on the Kalām, held that Maimonides' understanding of the Kalām was generally good. Several recent commentators, including Alfred Ivry, Herbert A. Davidson, and, especially, Michael Schwarz, do not share this view. They believe that when Maimonides portrays Kalām thinkers, and describes particular Kalām notions, he frequently errs. They base their view on Kalām texts that we have before us today. Full treatment of this question is beyond the scope of this chapter. Schwarz' scholarship is impressive, but Wolfson anticipated many of his claims. My assessment is that we should exercise caution when dealing with what Maimonides had before him and what was actually current in his circle. The type of texts that survived may distort our view. (Wolfson, *Philosophy of the Kalām*, Harvard, 1976, pp. 43-58, 59, 470; Schwarz, "Who Were Maimonides' Mutakallimūn," *Maimonidean Studies*, v. 2, 159 *et seq.*, and v. 3, 143 *et seq.*).

Sarah Stroumsa recently reappraised the issue, saying, broadly, "Maimonides' outline is, on the whole, strikingly perceptive," that he was "well-versed in Muslim theological literature," and "attended debates of the Mutakallimūn in Egypt," though she acknowledged that he streamlined his Kalām presentation to support his polemical objectives (*Maimonides in His World*, Princeton, 2009, pp. 26-38).

I note at the end of Proposition XII, below, "Maimonides Criticizes the Attempt by the Later Kalām to Drop Atomism," that Maimonides responded to major changes taking place in Kalām ideology that challenged his summary. It seems to me that this response demonstrates his thorough awareness of Kalām trends. What we have before us is a masterful distillation of an entire school of thought, what amounts to a Mishneh Torah of medieval Islamic theology.

THE TWELVE PROPOSITIONS

Shlomo Pines did not render the Twelve Propositions of the Kalām clearly in his English translation of the Guide. For example, he translates Proposition VII: "It consists in their belief that privations of *habitus* are things that exist in a body, being superadded to its substances." There is much worse in his translation of this chapter. That a "habitus" is a *property* possessed by a thing is none too clear either from standard dictionaries or Latin ones. It helps to be in on the Pines/Strauss code. As a service to readers, here is Friedlander's readable translation of the initial summary statement with my bracketed comments. The reader needs a handy list, since Maimonides' generally sequential exposition sometimes mentions the propositions out of order. Maimonides recognized this, which is why he placed this table of contents at the beginning of his chapter.

- I. All things are composed of atoms.
- II. There is a vacuum.
- III. Time is composed of time-atoms.
- IV. Substance cannot exist without numerous accidents.
- V. Each atom is completely furnished with the accidents, and cannot exist without them.
- VI. Accidents do not continue in existence during two time-atoms.
- VII. Both positive and negative properties have a real existence, and are accidents which owe their existence to some *causa efficiens*. [The issue was whether *negative* characteristics have real existence.]
- VIII. All existing things, i.e., all creatures, consist of substance [atoms] and of accidents, and the physical form of a thing is likewise an accident. [There are only atoms and accidents, not matter and form]
- IX. No accident can form the substratum for another accident. [That is, no accident depends on another accident].
- X. The test for the possibility [admissibility] of an imagined object does not consist in its conformity with the existing laws of nature. [Imagination trumps intellect and even perceived reality].
- XI. The idea of the infinite is equally inadmissible, whether the infinite be actual, potential, or accidental, i.e., there is no difference whether the infinite be formed by a number of co-existing things, or by a series of things, of which one part comes into existence when another has ceased to exist, in which case it is called accidental infinite. In both cases, the infinite is rejected by the Mutakallimūn as fallacious. [They deny the existence of an infinite, even in the sense of a divisible infinite or of a successive infinite, as explained below].
- XII. The senses mislead, and are in many cases inefficient; their perceptions, therefore, cannot form the basis of any law, or yield data for any proof.”

PROPOSITION I: ATOMS

The First Kalām Proposition is atomism. Long before the Kalām accepted atomism, the philosophers had abandoned it. The early Greek atomists held that atomic combinations occurred entirely by chance. This was anathema to the Aristotelian causal system, which is why Aristotle strongly opposed atomism. When Arabic translations of philosophic works began to appear, Muslims heard of this debate.

Learning that the Aristotelians held that God was not creator of the universe, the Muslims tried to replace the philosophers’ causal system with its implication of necessary natural order. They wanted to show that God acts without any intermediary or any discernable or predictable principle. In this, they accepted the early atomists’ conclusion that the atomic combinations occur according to no rule. They found it easier to adapt atomism to the Qur’an than to adapt the Qur’an to general causality. They merely exchanged the atomists’ “chance” for Allah’s continuous unpredictable miraculous interventions (Wolfson, *Kalām*, 467-469).

The difference was that the theologians, unlike the Democritean and Epicurean atomists, made the atoms massless particles with only momentary, not eternal, existence (Friedlander, *ad loc.*, note 4, 311-312 and note 4, 312-313). Kalām atoms were indivisible (Gr. *atomos*=uncuttable), unquantifiable (unextended) and indistinguishable from one another. When the atoms clumped to form a whole body, that whole was not greater than the sum of its atomic parts, for it only was these parts (Efodi). The conjunction of their atoms was one of nexus, not admixture (Shem Tov). This meant that their relation was a relation of contiguity only, not an organic relation.

The Arabic term Maimonides used for “atom,” *jawhar*, is ambiguous. It means both “atom” and “substance.” How do these terms differ?

The philosophic term “substance” refers to an entity that exists through itself, as opposed to an “accident,” which subsists on or through a substance. The philosophers had no problem saying that God is substance, since God exists independent of anything else.

The Kalām doctors used *jawhar* to mean “atom.” Some of their later adepts were shocked to hear the term *jawhar* as “substance” when applied to God. Maimonides revels in the double-entendre, at their expense (Schwarz, “Mutakallimūn,” 163-164). At bottom, both use *jawhar* to mean “being.” For the philosophers this designated an organic being, while the Kalām ground up all existence into discrete, identical, irreducible atomic beings.

Divine creativity, according to the Kalam, expresses itself in the moment-to-moment creation and recreation of everything as disparate, discrete and unconnected moments of being. This very granulation of reality prevents the mind from generalizing. But generalization is the first step to rationality.

They would reply that though we think we perceive regularity in nature, those perceptions depend on unreliable sense data (Proposition XII). The Kalām must deny the existence of such regularity; they thought that natural regularity would limit divine power (*Kalām*, 468, 559).

PROPOSITION II: VACUUM

The Second Proposition, the vacuum, flows from the First Proposition. The movement of atoms requires the existence of the vacuum.

Why must the atoms move? The answer was that this was the only way things could be produced in the Kalāmīc system. They rejected the notion of organic change, of growth and production of bodies, through the process of generation and corruption. They reduced organic growth to mere variation of atoms and spaces. The generation and corruption of beings that we perceive, was, for them, the result of purely mechanical atomic movement: when atoms clump together, there is physical body; when they move apart, the body is no more. (On organic generation: see, generally, Aristotle, *Generation and Corruption*; and my account of it, Guide 1:11, 1:30).

By itself, each atom takes up no space, but has *position*. It is only when paired that the atoms become quantities and bodies. They can only pair with one another by crossing the space separating them. This space is the void or vacuum.

This vacuum disperses through the pores of bodies. It allows for motion. Since atoms cannot penetrate each other, motion could not occur without space to move in. The vacuum provided that space.

The movement by which the atoms combine and separate was like that of Zeno’s tortoise, a movement from atom to atom across the space between them. That space must be empty, otherwise it would be another atom, but since the atom is indivisible, another atom cannot pass through it.

These atoms do not mix, enter, or dissolve into one another (Shem Tov). Crescas said that if it were otherwise, all of existence could conceivably enter into a grain of mustard seed (*ad loc.* to Guide 1:73, on page 116b). There must be room for the two atoms and at least one empty space to accommodate movement (Kafīh, n. 28, p. 134). The vacuum is the cause, or, at least, the condition for motion.

Aristotle rejected all of this. Moreover, he had also shown in the *Physics* that change could be qualitative (i.e., organic growth) as well as quantitative, so that there was no need spatial vacuums to accommodate change. (On all this see Wolfson, *Crescas*, 141, 181 and see 54, 55 and 60).

A space empty of atoms is empty of body, being, and physicality: this is the vacuum, a void empty of God and His creations.

The notion of the void in religion is interesting, since mystical systems emphasize the concept of nothingness. But this emptiness, withdrawal, *tsimtsum*, is not the same as vacuum. In Jewish esotericism, the withdrawal of God to provide space for creation is by no means a vacuum. Some kind of divine residue remains, the *reshimu*, which supports the development of all the things of the world.

PROPOSITION III: TIME

The Third Proposition, the atomization of time, is a further corollary of the First Proposition. The first three Propositions form a unit. Maimonides, therefore, expanded his account of Proposition III to include here a general critique of atomic theory.

Correlativity: Aristotle had shown (*Physics* 6:1-3) that the three *continua* of space, time and motion are correlative, even to an atomist. This means that if one of those *continua* is infinitely divisible, then all are; and if one is made of indivisible atoms, then they all must be. “If length and motion are thus indivisible, it is neither more nor less necessary that time also is indivisible” (*Physics*, 6:1, 232a19–22 and see 232a1–20). In other words, if all things in space are made of indivisible atoms, correlativity demands that time also have indivisible parts.

The Kalām was forced by this demonstration to hold that time was made of indivisible moments, “nows,” time-atoms. The Kalām had to atomize time just as they had atomized matter. They divided seconds into sixty smaller parts, repeating this division ten or more times over, until they arrived at what they claimed was the smallest indivisible moment. Maimonides scoffed that the Kalām had no understanding of time, unsurprisingly, since they paid no attention to the way things really are (*kol sh’khen elei sh’einam samim lev l’teva davar min ha-davarim*).

All Motion is Miraculous: Since they had atomized matter and time, correlativity demanded the same of motion. By atomizing time, they thereby divided motion into atomic chunks, eliminating the concepts of “faster” or “slower. An atom traverses the vacuum between itself and another atom in one moment. Since it moves across a vacuum, there is no speed difference due to any density of the medium (Crescas). Nothing ever goes faster or slower, neither the tortoise nor Achilles. The perception that they do so is illusory.

The Kalām theory creates absurd results. The arrow’s movement seems continuous, but is interrupted by a succession of halts as it moves from space to space to space. They claimed that a point on the edge of a rotating millstone moves at the same speed as a point near the center, though it covers more distance in the same time. That is because the millstone *disintegrates* as it moves, with fewer interruptions at the circumference than closer to the center. But we do not see this because the millstone miraculously *reintegrates* when it comes to rest.

The mill was the ancient symbol of the zodiac and of our daily bread, grinding out time and life. Maimonides’ use of this particular image suggests that the Kalām cosmos shatters every moment. This reminds us of Maimonides’ terrible indictment of the Kalām in Guide 1:71. Their arguments are an “upsetting of the world” and a “change in the order established at the time of creation.” (Pines’ trans. 181; Talmud, *Pesakhim* 50a, *Baba Batra* 10b, and *Shabat* 53b; see my treatment of these epithets at 1:71. For an extensive discussion of the symbol of the mill, see *Hamlet’s Mill*, Giorgio De Santillana, David R. Godine Publishing, 1992).

Atomism vs. Geometry: Kalām atomism undermined geometry. It made geometry impossible, since we build geometry on the potentially infinite divisibility of lines. If a line were made of an odd number of atoms, we could not divide it into equal divisions. Lines must be capable of fractional division. Atomism would also make irrational numbers impossible, for if a line were made of indivisible atoms it could not evenly divide into unit fractions.

The Kalam had problems with simple geometrical concepts, like the diagonal of a square, since diagonal of a square is such an irrational number. In relation to its side taken as a unit it is the square root of 2, the Pythagorean Constant: $\sqrt{2} = 1.4142135623\dots$. This is a non-repeating decimal expansion. Such irrational numbers could not exist in an atomic universe of indivisible points, but they are fundamental to geometry.

The Kalām denied the existence of squares altogether, or they said that the diagonal *was the same size* as the side of a square, appearances to the contrary be damned. Otherwise, they would have had to admit that the diagonal contained a fraction of what they believed was an indivisible atom (Efodi). It followed that they denied the *incommensurability* of the diagonal with the sides of its square. There could be no such incommensurability if the world were made of indivisible atoms. But incommensurability is also integral to geometry.

Another way the Kalam explained diagonals, according to Shem Tov, was to say that each side of the square has the same number of atoms as the diagonal, except that the atoms of the diagonal have more spaces between them. This is rather like the way they postulated that there were more pauses in the motion at the hub of the turning millstone.

Plato believed that the reality of geometry was higher and more enduring than that of everyday matter. In the *Meno* he demonstrated the *a priori* existence of geometrical knowledge (83c-86a). One reason that Plato and Aristotle scorned atomism was that they recognized its incompatibility with geometry.

Does It Matter? What is the practical result? What if atomism were true and geometry false? Even if it is not false, does geometry exist outside of our minds? After all, geometric points and lines exist only in thought. Perhaps Maimonides should have pointed to the practicality of geometry in the architecture of the Romans and the Muslims, but he did not. To demonstrate the impracticality of atomism he moved to his next argument, based on hydraulic mechanics.

Maimonides points to a ninth century compendium of over a hundred water devices, which he claimed were all built. They were grounded on the principle that nature abhors a vacuum. The Kalām embrace of the vacuum would have made it impossible to build these hydraulic devices. He complained, “The refutation of such propositions is a mere waste of time” (*balu y’meihem*). His point was that the atomism of the theologians would have prevented the life enhancing achievements of engineering (*The Book of Ingenious Devices: Kitáb al-Hiyal*, by the Banú Músà bin Shákir, trans. P. Hill, Springer, 2007).

Why did Maimonides think that the principle of the vacuum would make hydraulic devices impossible? Shem Tov cites an example to demonstrate the problem. You can make a water sprinkler from a bottle with small holes drilled in the bottom. With the top firmly covered, if you carry the sprinkler to the garden it will not lose water through the bottom holes. When you uncover it, water will sprinkle from the bottom. The flow stops when you cover the top, due to the balance of the air pressure outside against the gravity and lack of air pressure within, which cancel each other out. Uncovering the bottle lets the air in so that gravity can do its work. (The Mishnah, *Kelim* 2:6, called such a sprinkler a *titros*).

The point of the demonstration is simple. If there were interstitial vacuum spaces between the atoms of the bottle, there would be nothing to keep air from rushing in to balance out the pressure above and below, because nature abhors a vacuum. All hydraulic devices depend on such a balance between water and air pressure, and could not work if their casings were porous.

The premise shared by Shem Tov and Maimonides was that the pores would let air in, but that would not occur if they were tiny enough to block the passage of air atoms. Maimonides would be right, however, according to the Kalām conception, since their interstitial voids had to be large enough to allow movement of atoms.

PROPOSITIONS IV AND V: ACCIDENTS

The next three propositions (IV, V, and VI) establish the Kalām theory of accidents. Accidents are those things that have no independent existence, unlike the substances to which they attach. The Mutakallimūn regarded all characteristics of things as accidents. Kalām accidents replace the substantial forms in Aristotelian physics. The Kalām reality included only atoms, accidents and God.

All atoms must have accidents. This means that every atom receives one of each pair of opposed accidental characteristics that its embodiment will require. Proposition IV states that no atom can exist without at least one accident. Indeed, God has no power to create an atom without an accident (*ain l'taaro yitalei b'yakholet al briat etzem bli mikra, ki zeh nimna*). According to Proposition V, the atom is furnished with all the accidents it needs.

Atoms Require Accidents: The atoms may endure for more than one time-atom, as long as they are furnished with accidents. But no accident endures more than one time-atom (Proposition VI). Without accidents the atoms cannot endure. That is because of Proposition X, that anything imaginable can be real—the converse is that the *unimaginable*, though logically possible, cannot exist. The Kalām cannot imagine that an atom could exist without accidents. Why? Because the Kalām atom has no mass or magnitude. It is that smallest item of being, having position but not extension, i.e. *being there*. The imagination cannot produce a picture of it. We can only imagine an atom if it has an accident to know it by. Why does the atom have no mass or magnitude? If it had such physical properties it would be divisible, like other masses and magnitudes. If the atom were divisible it could, at least potentially, be infinitely divided. The Kalām, however, could not imagine an infinite (Proposition XI). At bottom, there had to be some irreducible minimum of being.

By contrast, the Aristotelians held that things are made of formed matter. Matter without form is an intellectual possibility, a conceptual existence, despite being unimaginable. The Kalām did not accept intellectual possibility as the touchstone of what can be, but only imaginable possibilities. Neither un-formed matter nor Kalām atoms are imaginable, since we only imagine (make images of) bodies. The mass-less atom lacking any identifiable characteristics is not an imaginable body.

The atom cannot imaginably exist without its accidents. Allah must refurnish it with replacement accidents at every moment.

The Atom Has All Its Necessary Accidents: Consider the variety of items that fall into the basket of Kalām accidents. Since anything not an atom is an accident, this is a large group. It includes such likely candidates as, color, shape, smell, and taste, but also such surprising ones as intelligence, soul, knowledge, sense, rest, death, life and possibly destruction. Anything that can be a property, characteristic or description of a thing they would call an accident. Of course, Maimonides is appalled that anyone would consider intellectual and spiritual features to be physical accidents attached to bodies.

Generation vs. Alteration: All this led to the Kalām replacing Aristotelian form/matter theory with atoms and accidents. The difference is the dynamism of the Aristotelian system, which produces beings through qualitative and quantitative change resulting from generation and corruption. By contrast, for the Kalām, all change is merely alteration. There is nothing but the movement of atoms in the vacuum, and the replacement of accidents at every moment.

The Creation of Negation. But how can an accident be removed (*ma hu ha-davar sh'ha-adiru*) and replaced by its privation? Does God have the power to destroy? Can destruction be created? It was axiomatic that an agent could not create a privation since a privation needs no agent (*ki ha-oseh aino oseh et ha-heider, ki ha-heider aino zekuk l'oseh*). Because the accident only lasts a moment, God just stops re-creating it.

A minority among the Kalām contended that some accidents had duration. But how could their duration ever end? They argued that when God wanted to remove those durable accidents He created a separate accident of destruction. The peculiarity of this accident of destruction is that it is free-standing, not attached to an atom, (*mikra ha-kilion lo b'nosei*). This accident becomes the agency of the destruction that the believers supposed preceded the judgment day (*v'yihieh ha-kilion ha-hu k'neged mitziut ha-olam*). God does not personally have to destroy anything.

Shem Tov explained that the accident of destruction could not have an atom as its subject because the privation of an attribute (existence) cannot itself be an attribute subsisting in a subject. Restated: an atom cannot carry the accident of its own destruction.

The Illusion of Individual Characteristics: Maimonides ridiculed Proposition V: that each atom has all its necessary characteristics. This would mean that a body has no accidental characteristics *as a body*. Whatever looks like the *form* of the body is merely the aggregate of each of its many atomic accidents.

He provides several examples to mock this doctrine. It might seem reasonable to assert that the whiteness of snow is in each piece, not in the lump, until we realize that the Kalām not only mean each flake or crystal of snow, but each individual atom. The individual atoms of snow all carry the accident of whiteness. The atoms themselves, however, are all exactly alike, not differentiated into oxygen or hydrogen. Each carries whiteness as its characteristic for the moment we see it, not necessarily the next, for no characteristic lasts more than one time-atom, unless God recreates it. In another example, when a body moves, every atom moves, not only leg muscle atoms, but also bone atoms. It is not that the muscles carry along the bones. The bone atoms move on their own accord. Worse yet, each atom of the body carries *knowledge* as an accident: that is, what you know now is whatever you know, and you know it in each atom of your body. What you know is not the same knowledge you had a moment ago, because God recreates knowledge each moment in each atom of your body. The ugly result is the reduction of spiritual and intellectual characteristics to physical atomization.

Obviously, the Kalām had problems with the mind, intellect, and soul. Maimonides records a minority Kalām view that these faculties were accidents found in only one atom of the body. In yet another minority view, the soul was made of a different kind of atom, perhaps a very fine (*adinut*) type of atom diffused through the body. But the majority of the Kalām held that these spiritual accidents appear in each atom of the body. The result, with all these theories, is that they corporealized the mind, knowledge and soul as atomic accidents, (*hinei einam mishtakheirim m'ha-dea sh'inyan ha-nefesh mikra msuyam*). Since all accidents are, strictly speaking, interchangeable, there seems to be no reason why an ant could not possess the genius of an Einstein.

By contrast, Maimonides believed that the *body as a whole* manifests its characteristics, not the individual atoms. He notes that emeralds smash to a white powder. This shows that greenness emerges from the emerald as a whole, not from its parts. Similarly, life endures in the whole of a living being, not its amputated limb. The Mutakallimūn reply, with Proposition VI, that no accident lasts more than one time-atom. We cannot go by the greenness momentarily seen in the emerald or the life momentarily exhibited by a living being. At any moment, the emerald could be white or the animal could be dead.

Oppose All Systems: The Aristotelian system was a system, i.e., a generalization about what *is*, an organic explanation for the regularity seen in the universe. The Kalām concept, derived from literal reading of the Qur'an, was that only God has power. The interposition of any other agency, rule, law, generalization, nature, mediator or system would mean that God has a partner. This would be tantamount to the denial of God's plenary power and heretical by definition. The result was the granulation of reality. Reality is an array of identical pieces moved about the vacuum by the inscrutable will of Allah, showing characteristics that cannot last a moment, in which no part has any influence or effect on any other part. This system we now call "Occasionalism," since each occasion is a new creation.

Were the Kalām Atomists Right? Did the atomists have a point? How well does Aristotle's theory of form and matter hold up today? Werner Heisenberg, the pathbreaking 20th century physicist famous for the Heisenberg uncertainty principle, thought that Aristotle explained quantum physics better than atomism did. He liked the potentiality and dynamism of the Aristotelian concept of matter.

He wrote that atoms were "not as real" as we had been led to think.

"In the experiments about atomic events we have to do with things and facts, with phenomena that are just as real as any phenomena in daily life. But atoms and the elementary particles themselves are *not as real*; they form a world of potentialities or possibilities rather than one of the things or facts...The probability wave of Bohr, Kramers, Slater...means a tendency *for* something. It's a quantitative version of the old concept of '*potentia*' from Aristotle's philosophy. It introduces something standing in the middle, between the idea of an event and the actual event, a strange kind of physical reality just in the middle between possibility and reality." (p.41). And: 'If we compare this situation with the Aristotelian concepts of matter and form, we can say that the matter of Aristotle, which is mere '*potentia*,' should be compared to our concept of energy, which gets into 'actuality' by means of the form, when the elementary particle is created," (*Physics and Philosophy*, New York, 1958, 1999, pp. 134, 160).

Against this Aristotelian potentialism, Maimonides' critics, like R. Hasdai Crescas, defended Kalām atomism. They removed the potentiality from matter, reducing it to a single type of material extension. This encouraged the successes of science up to just before the era of quantum mechanics (Wolfson, *Crescas*, 119-124). Werner Heisenberg shows us that in the quantum physics era we have reached the limits of this reductionism.

PROPOSITION VI: ACCIDENTS DO NOT LAST TWO TIME-ATOMS

Churchill jokingly described history as just one damn thing after another. That is essentially the Kalām view of physics. God creates an accident in an atom and replaces it with another similar accident, and another, and this goes on as long as He wills it, and for no other reason. When He wants to change the characteristic, He does. When He stops creating replacements, neither the characteristic nor its atom endures. It only lasts one time-atom. The atom cannot endure unless God constantly renews its attendant accidents, since God had no power to create atoms lacking accidents (*ayn l'taaro ytalei b'yakholet al briat etzem b'li mikra*).

Shem Tov produced a clever critique: if the atom is dependent upon the existence of an accident, and the accident is dependent on the existence of its atom, it would follow that the atom is dependent on the existence of the atom, an absurd tautology (119a).

Accidents have no duration. It follows that the accident cannot pass from one atom to another, nor attach one to another, for in either case it would have to last more than a moment. Accidents are, to use Friedlander's term, intransitive.

Maimonides records, however, that a Mutakallimūn minority did confer duration upon a few accidents. He says that their own sect's dogmas forced them to this position, while the rest rejected their views. The majority rejected duration since it implied belief in nature.

Kalām Opposition to Nature. Nature is the perception that characteristics of things endure. If things were to endure, God would not always have to renew the moment-to-moment existence of the natural things. But this leads to the heresy of "partnership," i.e., *shirk*, since nature would then be God's partner.

Moreover, if things could endure, they would never end. That is because God could not create their annihilation, as God does not create negative things (but see Proposition VII), and, more generally, because privation requires no agent (*ki ha-heider aino zekuk l'oseh*). The accident ends when the agent stops producing it. The agent must

go on reproducing that characteristic at every moment for it to appear as though it endured. The only real agent is God, for no other substance or substantial entity could be the agent effectuating change. These commitments flowed from the Kalam opposition to nature.

The Jewish view was different. God created nature because He wanted to contrast its endurance with the rare eruption of miracles, and because God wanted to endow man with a free will to dominate nature.

(Guide 1:66 and my comment there; *Genesis Rabba* 5:5; Commentary on the Mishnah, *Avot*, 5:6; Wolfson, *Repercussions*, 172 – 178. Lenn Evan Goodman argued that nature is an attribute of God, in the Maimonidean sense of the term “attribute,” in his “Matter and Form As Attributes of God in Maimonides’ Philosophy,” *In a Straight Path: Studies in Modern Philosophy and Culture in Honor of Arthur Hyman*, Catholic University, 1988, 86 – 97, and especially 92; also, crucially, Goodman’s “Maimonidean Naturalism,” *Maimonides and the Sciences*, ed. Cohen and Levine, Kluwer Acad. Publ., 2000).

The Doctrine of Custom. Maimonides provided further examples revealing the absurdity of the momentary existence of accidents. A white cloth blackens when dipped in indigo (black, not blue? see Kafih, p. 138, note 81; the Kalām have only five colors, per Friedlander p. 323, note 3). According to Kalām doctrine, whenever white cloth contacts indigo God “customarily” (*hanhig ha-shem noheg*) replaces the white accident with a black accident in each atom, and then continues to recreate black accidents as long as it pleases Him to do so. “Custom” was their explanation for the apparent persistence of the natural order. Otherwise, our perception that the indigo changed anything is an illusion caused by misleading sense-data (Proposition XII). Whatever we call nature, they would call custom.

Similarly, every minute an ensouled being lives, his soul is recreated, in each atom, a “hundred thousand” times or as many time-atoms are in a minute, since accidents lack duration. In another example, the pen seems to move because of the action of my hand. The reality is that the pen’s motion, my hand’s motion, my will to move the hand, and my power to move it are all independent accidents, recreated moment to moment by Allah. Each is intransitive, for no accident depends on another. No one actually “writes” a Qur’an. Appearances to the contrary are an illusion.

The Doctrine of Acquisition. Maimonides registered a minority view from among the Mutazila, the earlier version of the Kalām, which still believed in human free will. In this portrayal, God creates the various possible outcomes, from which the human actor may make his choice. The writer could then *decide* to move his hand once Allah created the *power* to move it. In this minority view, although God creates the momentary power to move the hand, He also provides the writer with the momentary choice to move it in the manner that the writer does move it.

The Asharite fatalists rejected this view, replacing free will with their notorious doctrine of “acquisition” (*kasb*). Maimonides explained it in Guide 1:51, as follows. The writer, who finds his pen moving across the page, chooses to accept this fated action. By morally conforming himself to his divinely ordained fate, he thereby “acquires” God’s action as his own.

Maimonides dismissed “acquisition,” writing in Guide 1:51, “Such things are only said: they exist only in words, not in thought, much less in reality.”

One Asharite attempted a compromise. Maimonides records: “Some of the *Asha’ariyah* assert that the power created in man *participates* in the act (“has some influence,” *hashpaah msuyema*) and is connected (*keshet*) with it, an opinion which has been rejected by the majority of them.” Wolfson identified this view with Abu Bakr Al-Baqillani (d. 1013; *Philosophy of the Kalām*, 692), who thought that one who “acquires” his fated action might influence its outcome. The fatalists rejected even this vague assertion of free choice. God creates the will by which the writer allegedly acquired his action. God *made* him acquire it.

There is nothing for man to “acquire.” God is the only actor in the Kalām universe. Anyone who fails to accept that God recreates everything at every moment has succumbed to the heresy of “partnership,” as though Allah needed a partner (*u’mi sh’ayno b’dea sh’kakh poel hashem kevar kafar sh’hashem poel*). Maimonides mocks this absurd result, which overturns everything we know about the world. He quoted Job 13:9, “Will you mock Him as you mock a man?” as this is “indeed nothing but mockery.”

PROPOSITION VII: THE REALITY OF NEGATIVE CHARACTERISTICS

Since God directly creates every event every moment in the Kalām world, He is also the creator of negative events, from which Proposition VII follows: all negative characteristics are real. This is confusing, since we already heard that God does not create privations. This was in fact an area of dispute.

There are only two things in this world, atoms and accidents (Proposition VIII), and so such negativities as rest, death, and destruction must be accidents, not the absence of their positive counterparts, i.e., movement, life, and creation. Maimonides contended that the majority of the Mutakallimūn believed that what he called the absence of a property was actually a real property, i.e., an accident. What we think of as the absence of a property was for them the binary opposite of that property, e.g., death as the accident opposite the accident of life. Since an accident only lasts a moment, God must continually re-create it as long as the substance is at rest, destroyed, or dead. Maimonides ridicules this position. Since people have discovered two thousand year old teeth, how long must God repeatedly re-create death in a corpse?

Maimonides notices two types of negative characteristics, “privations” and “contraries.” Failure to distinguish these two types of negative characteristics led the Kalam astray.

Those that Maimonides regarded as merely the absence of their positive counterpart, he called by the philosophic term “privations” (*heder*; Ar. *‘adam*, Gr. *steresis*). A privation is not a thing in itself, but only the lack of something. The doctrine of privation has theological implications: it *removes* dualism by refusing to confer on darkness, death and evil independent existence. These privations are just the absence of light, life and darkness. Maimonides calls the other kind of characteristics “contraries,” e.g., hot and cold, which display a continuum between them. Contraries are different characteristics of the same genus or series. The contraries cannot be true at the same time, but a mean between them may exist.

The Kalām change contraries to contradictories, i.e. binary alternatives, by removing the continuum between them. They also made privations into just such contradictories. Death is no longer the absence of life but a real characteristic. They made death and life into contradictory accidents, just as they did with hot and cold.

By transforming privations into contradictories, the Kalām majority fostered dualism. Dualism is the belief that negations are real, i.e., that evil is not just the absence of good. An atom can be one or the other only, alive or dead, hot or cold, bitter or sweet. Accidental characteristics are alternative, discontinuous binary realities. (See my *Introduction II* for an explanation of the distinction between contradictories and contraries; also Wolfson, “The Kalām Problem of Nonexistence and Saadia’s Second Theory of Creation,” in *Studies in the History of Philosophy and Religion*, v. 2, 340-341, Harvard, 1972).

Minority Report. Maimonides then proceeds to explain the position of those Mutazilites who inconsistently made some accidents durable. The examples he gives of such special accidents are darkness, and rest, both of which are negative characteristics. He classifies some as “existing” (*n’mtzaim*) while some are “privations of properties,” (*ha-kheder kinyan*). The “existing” properties would be those whose duration they asserted. By “privations of properties,” the minority apparently agreed with the philosophers, at least with respect to a small number of characteristics, that their negation was caused by their absence and not by their replacement with an opposite characteristic.

Shem Tov had a different and perhaps more satisfying explanation of the minority's positions and of Maimonides' criticism. He classified negative characteristics either as absolute privations (*ha-heder ha-mukhlal*) or as non-absolute privations. Non-absolute privations are those "privations that normally exist" (*ha-heder asher m'darkho sh'yimtza*).

The distinction lies in their frequency of occurrence. Those that occur frequently and do not last long are "non-absolute," while death and destruction are absolute privations. When the minority maintained that privations cannot be produced by an agent (God), what they meant was that an agent does not produce "absolute privation," such as death or destruction. But with the privation of a frequent non-absolute property, like hotness, God just keeps re-creating the accident of hotness until He stops, and then He creates cold, which God then has to re-create as long as it lasts.

Therefore, when Maimonides claimed that they believed that the "absence of a property is in itself a property that exists in a body," (*hem ha-inyanim n'mtzaim b'guf*) what he meant, according to Shem Tov, was that this "absence" was a frequent non-absolute property in a body. In this case, it was not so much that God creates a negative property, but that he replaces it at that moment with its binary contradictory, which functions like a positive characteristic. Thus, when God replaces motion with rest He is not creating a negation, but replacing the positive accident of motion with its "positive" contradictory, rest.

On the other hand, with absolute privations, like death and destruction, the minority conferred duration on those privations so that God would not have to keep re-creating them. This occurs either by creating a durable negative characteristic or because of the "accident of destruction." (Shem Tov, 120a).

The Discontinuity of Death and Destruction. The majority rejected all of this. According to Maimonides, the majority maintained that even "absolute" privations are not the absence of their positive counterparts, but real binary alternatives.

Thus, they held that one accident of rest replaces another at every moment. This would then be true of life and death. A moment of death replaces a moment of life, and God has to replace that moment of death every moment an animal remains dead.

Shem Tov castigated the absurdity of all these "deaths" repeated in every atom in a corpse. How can we possibly attribute repeated death-accidents to the same continuously existing atom? (120b, lines 20 – 21).

The Kalām had a problem with negative *events*, such as destruction, in addition to negative *states*, like death. Some hesitated to make God a destroyer. The minority that thought there were some durable characteristics had to have an accident of destruction to end them. The majority rejected this accident of destruction, since non-existence requires no agent.

Theory Must Follow Reality. Surveying these variations among the sects, Maimonides concluded, "their sole object is to fashion the universe according to their peculiar opinions and beliefs." This recalls Themistius' retort that theory should always follow reality (Guide 1:71).

Maimonides, reflecting the Talmudic tradition, understands that God purposely created the natural order and only rarely upsets it. The corruption of corporeal things is part of nature.

His problem was explaining the tenet of bodily resurrection. Bodily resurrection would have to be something completely outside the course of nature. If, as he believed, death was the absence of life and not a momentary accident, then how would he explain resurrection? Since the Kalām held that death "exists" only so long as God desires, resurrection was not a problem. God just stops re-creating death and goes back to creating the

characteristics of life in that dead individual. Maimonides could not accept this. In his *Treatise on Resurrection*, he explained that the revival of the dead really is a miracle, completely beyond explanation or even description. We won't know it until we see it.

Since the Kalām held knowledge to be an accident, it follows that ignorance must also be an accident. They held that ignorance was a real negative characteristic, and not merely the absence of intelligence. English translations fail to convey Maimonides' subtle joke that God must recreate ignorance in the ignoramuses, by which he meant the ignoramuses of the Kalām, at every moment. (See Kafih's reading of *etzlam* page 139, note 99).

PROPOSITION VIII: SUBSTANCE AND FORM BECOME ATOM AND ACCIDENT

The Eighth Proposition is that there is nothing but atoms and accidents. What we call form is only an accident, while matter is nothing but atoms. Kalām atomism was a clear rejection of Aristotelian hylomorphism. Aristotle had revamped the Platonic form by moving it from the world of the ideas to the species qualities of the thing itself. Thus, the form became the essence, the definition and the qualitative aspect of the species of each thing. The Kalām flattened this organic conception by recasting substantial form as an array of unrelated accidents.

This is a category mistake, as Maimonides demonstrates. Examples of category mistakes are that “five is hot” or “apples are tardy.” Aristotle theorized that all things are in the categories of substance, quantity, quality, relation, place, time, position, state, action, or passion. In 1:52, Maimonides created a new system reducing these ten categories to five: 1) definition, 2) part of a definition, 3) quality, 4) relation, and 5) direct action. Of these, only the last three are accidents. *Definition* and *part of a definition*, i.e., the formal aspects of things, are not accidents. The formal distinctions between genus and species fall under these first two categories.

In the Kalām scheme, where all accidents are interchangeable, category errors are rife. That is because all accidents bear exactly the same direct relation to their respective atom for the moment that it is their substrate. Such categorically different things as animality, humanity, sensation, intelligence, hot, cold, bitter and sweet, are precisely comparable to one another, and any atom could take any one of these accidents. A bug is just as likely as a man to have intelligence, and that same bug is only accidentally different from the angels and from the throne of glory.

The Kalām doctors even assert that the difference between two different species is the same as the difference between two individuals of the same species (*ad sh'yehei hevdel yikhidi min zeh m'yikhidi min akher, k'hevdelei prat m'prat m'min ekhad*), that is, these are accidental, not essential differences. In other words, the difference between Socrates and Fido is the same as the difference between Lassie and Fido.

An interesting feature is the note about the throne of glory, which the Kalām apparently regarded as physical, atomic. Maimonides had written about the throne in the Lexicon section, Guide 1:9. He defined “chair” (*kisse*), giving four definitions, none of which were physical chairs. Thus, the “throne” represents 1) divine dignity, manifesting His kingship; 2) God's “place” which is not a place; 3) a manifestation of divine glory, i.e., the providential order; and, 4) the essence of God. By contrast, to Maimonides' horror, the Kalām held that the angels, the heavens and the throne of glory were physical, were all made of identical atoms.

PROPOSITION IX: NO ACCIDENT IS THE SUBJECT OF ANOTHER ACCIDENT

The Kalām argued that no accident was *dependent* upon any other accident. All accidents have a direct relationship with their underlying atom. The atom is furnished with its accidents, with each accident independent of any other. Maimonides opposed this view. Since nature was a continuous organic stream of physical events, he accepted its complexity, including the development of dependent characteristics.

The Kalām collapsed those complexities to the simple relation between an atom and its accidents. These accidents do not depend on anything other than their own atom. No accident could endure long enough to support the dependent accident (*tsarikh sh'yhei yatziv tamid b'meshekh zman m'suyam*).

This proposition negates an important example of a dependent accident. Aristotle understood time as the number by which we measure the motion of a moving object from where it started to where it ends up. It is an accident dependent upon the motion of matter. By contrast, the Kalām imagine that time and motion are separate accidents. As we saw in the example of the pen, time bore no relation to the motion of the arm. Rather, the motion of the arm was the motion of its individual atoms, while time was the interval that it took one arm-atom to cross one equal space at the equal interval of one time-atom. It never takes two time-atoms, since God must recreate the motion separately each moment. There is nothing to count, and, therefore, no passage of time.

PROPOSITION X: ADMISSIBILITY

“Timaeus: First then, in my judgment, we must make a distinction and ask, What is that which always is and has no becoming; and what is that which is always becoming and never is? That which is apprehended by intelligence and reason is always in the same state; but that which is conceived by opinion with the help of sensation and without reason, is always in the process of becoming and perishing and never really is.” (Plato, *Timaeus* 28a, Jowett trans.)

Introduction

Maimonides' Tenth Kalām Proposition is not only the most important of their Propositions, but this section, including its *Note* on the imagination, is central to the message of the Guide. He introduces the topic this way:

“This proposition concerns the theory of ‘admissibility,’ which is mentioned by the Mutakallemim, and forms the principal support of their doctrine. Mark its purport: they observe that everything conceived by the imagination is admitted by the intellect as possible...”

Three key terms are involved, “admissibility,” “imagination,” and “intellect.” Strictly speaking, the doctrine of admissibility (*hitakhnut* / תְּחִינָה) tells us that the *possible* is that which we cannot prove to be impossible. It is a proposition that we cannot disprove. If it passes that test, it is admissible, although it may not necessarily be true. Maimonides' used this doctrine of logical admissibility as a tool to establish the possibility of creation *ex nihilo*, arguing that Aristotle was unable to prove its impossibility.

This rather restricted use of admissibility is not what the Kalām had in mind. In their hands, it was a license for the free exercise of imagination (although there were some “impossibilities,” as we will see). It provided them the justification for their rejection of scientific methodology. For them “everything conceived by the imagination is admitted...”

Maimonides diagnosed the Kalām problem as their restriction of admissibility to the imagination, unlike his restriction of admissibility to the intellect. To explain why imagination cannot be the criterion for admissibility, he appends to this section a *Note* on the imagination, which catalogs its uses and abuses.

In the course of his discussion of admissibility, Maimonides wields Kalām tools and terminology against them. One way he does this is by producing many examples where he contrasted the action of the imagination with the action of the intellect. But examples, no matter how absurd, could not constitute logical proof against the Kalām, since the proliferation of examples is the very way of dialectic, non-demonstrative polemic. Perhaps it was his way of meeting them on their own rhetorical field.

Thus, to demonstrate the absurdity of their principle that anything imaginable is admissible, Maimonides provided several examples. Having at the back of his mind his previous chapters on cosmology and physics, he begins at the highest level, saying that the Kalām could imagine that the outermost sphere of the universe might conceivably exchange places with the earth. Proceeding to the sublunar sphere, he suggests that admissibility would destroy the theory of the proper places of the elements, since one could imagine the highest sphere of fire exchanging its place with the lowest sphere of earth. He then moves to animate substances, suggesting the admissibility of a man the size of a mountain flying in the air, or an insect the size of an elephant. They do this with the whole universe, for things could take one form as well as another, inasmuch as “one form is not more possible than the other; they do not ask whether *existing things* conform to their assumption.” (*ytakhen sh'yihyeh kakh, v'efshar sh'yihyeh kakh, v'ain hiot davar ploni kakh tov m'hioto kakh, m'vli l'habit l'tioum ha-mitziot*).

As we will see, “existing things” is not the sole criterion of real intellectual admissibility, but it is a good starting point (see below, “Maimonides Turns Against the Philosophers”).

Maimonides suggested another type of impossibility when he portrayed the fantasy of a man with a horse’s head and wings. He called this an “impossible falsehood,” (*ha-mutzar ha-kozev*; Jud-Ar. אַלמְכָרֵע אַלכֹּאֲדָב) suggesting Aristotle’s statement: “For the false and the impossible are not the same; that you are standing is false, but that you could be is not.” Hybrid fantasies such as centaurs do not exist, since genus mixtures are impossible. (*Metaphysics*, IX:4, 1047b, 12-14; Wolfson, Crescas, 343 note 47).

Nature As Custom. Things tend to stay the way they are. The Kalām rejected the idea that this permanence was due to a law of nature. We saw above that they clung to their doctrine of “custom” or “habit” (*minhag* / מִנְהָג). To explain this doctrine, Maimonides proposed a parable, very much in the Hebrew tradition of such *mashalim*. In this tradition, the main character is usually a king, who acts as a stand-in for God. In this case, the king never walks through the city, but has always ridden. Obviously, the king is bound to no law, since he is the source of law, and he could choose to walk if he wanted to. It was merely his custom or habit to ride through the city. In the same way, God is bound to no law of nature. He could exchange the places and properties of the element of fire with those of the element of water, though we have never seen it happen.

The Kalām doctrine of custom completed the foundation for the Kalām doctrine of admissibility, since they thought that it explained apparent regularities of nature. These regularities were only apparent, since, as we will see in Proposition XII, the senses can never be trusted.

How Do We Determine What Is Impossible? Since, for the Kalām, there was nothing making one state better than another (*ayn hiot davar ploni kakh tov m'hioto kakh*), they determined possibility and impossibility by what was admissible to the imagination.

The Kalām did admit that some intellectually impossible things were in fact impossible, but they were unsystematic. They admitted the law of contradiction, in the form of the premise that two opposites cannot coexist in the same place. They believed in other impossibilities: no substance could exist without its accident, or vice versa; that a substance could become an accident, or vice versa; or that any substance could penetrate another substance. But by “substances,” they meant atoms. While it may be impossible for a physical substance to exist without manifesting certain characteristics, e.g. “accidents,” it is not obviously impossible for a substantial body to penetrate another body, inasmuch as that is what happens whenever we consume food.

The Kalām also acknowledge that it would be impossible for God to be corporeal. Although the imagination only features corporeal things, divine corporeality was too obnoxious for most Mutakallimūn, although some thinkers could accept scriptural verses about Allah “sitting” literally (e.g. Ibn Hanbal, 780–855 CE). Most Mutakallimūn, according to Maimonides, would term such impossibilities, “a phantom and a fancy” (Friedlander, 338 note 1; *ha-hashaarut v'dimion* / הַהֲשָׂאָרִוּת וְדִמְיוֹן; see Wolfson’s discussion under the heading “Impossibilities” in *Repercussions*, 192 – 198).

There did not seem to be any system in this list of impossibilities, merely a reaction to opinions that seemed most scandalous to entertain.

In any event, it is clear that we need a criterion to determine what is possible (admissible), impossible, or necessary. Despite the exceptions above, the touchstone for the Kalām was still the imagination, or sometimes, opinion, but they concealed this by calling the imagination the “intellect.” To explain this, Maimonides turns to Abū Nasr al-Fārābī (c.870-950), a Muslim philosopher he admired, who showed that what the Kalām call “intellect” was merely opinion:

“As for the intellect that the Mutakallimūn are always talking about, ... they mean thereby something that is universally accepted by the first [reflections] of the opinion of everybody. For they designate as intellect the first [reflections] of common opinion [professed] by everybody or by most people. ...If, however, you examine the premises they make use of, you will find that all of these without exception are derived from the first [reflections] of common opinion. Accordingly, they point out one thing and make use of another.” (*Risala Fi'l-'Aql, Epistle on the Intellect*, Pines’ translation, in *Guide of the Perplexed*, “Translator’s Introduction,” lxxxiii; and 207, note 23; Kafiḥ, note 30)

Of course, the whole point of philosophy was to raise thought from common opinion to the level of truth. Indulgence of opinion is sophistry.

Maimonides also had a problem choosing the right criterion. By making Aristotelian science, even to a limited extent, his criterion, Maimonides unfortunately took the geocentric universe as not only admissible, but also undeniable, just as he did with the now outmoded Aristotelian theory of the “proper place” of elements.

The Dialogue of the Mutakallimūn and the Philosopher

Maimonides’ complaint about the theory of admissibility was that it privileged imagination over intellect. To depict this, he conceived a dialogue between a philosopher and a Mutakallim. Maimonides was not a dramatist like Plato; he does not sustain dialogue for more than a few turns. Like Aristotle, he was primarily an essayist. Nonetheless, the dialogue format allows him to demonstrate the seriousness of the problematic of admissibility.

He shows how the Kalām destroy any concept of natural order. The Kalām theologian asks the philosopher to explain why iron is black and hard, and butter is white and soft. In other words, he is asking why things are the way they are, rather than otherwise. It is the core question of admissibility, because it asks whether things could be different from the way that nature always presents them to us. What “particularizes” (*hityakhadut* / תִּצְרִיף) the iron and the butter to be the way we always find them?

The Philosopher’s Statement. The philosopher’s wholly Aristotelian hylomorphic response turns on his understanding that the Arabic *jawhar* meant substance, not atoms. He says that in its ultimate composition the substance can end up as metal or butter, depending on how its matter was formed. This is its *ultimate matter*, the resulting material substance that we see.

Some things are more complex than others are, the most complex being man. The matter that ends up as man or as a bar of iron does so after the complicated process of generation. At the end of this process, the ultimate substance is different in each species and even in each individual. Some accidents flow from the ultimate matter, such as the color of iron and of butter. Other accidents flow from the form. Maimonides mentions laughter and astonishment as accidents dependent on man’s sapient form, which he calls “soul.”

The Kalām Reply. The Kalām doctor replies that the problem is not so complicated as the philosopher makes it. You simply plug in the Propositions as needed. (He assumes but does not mention Propositions IV, VII, and XI,

but includes XII, their rejection of sense-data). He explains that what the philosopher calls “form” does not exist. There is no form, as such, that differentiates things. Any appearance of form is merely an array of accidents. There is also no “matter,” just atoms and groups of atoms. These atoms are identical to one another. All perceived formal distinctions are merely accidents that attach to individual atoms. The assemblage of all of those atoms with their individual accidents is the thing that we see, whether it is iron or butter, at least for that moment.

This, apparently, silences the philosopher. Maimonides picks up the gauntlet, reverting to essay form for his response to the Mutakallem, in his *Note* on imagination.

The Importance of Distinctions. The Kalam destruction of distinctions will be the key to Maimonides’ response. The Jewish view, emerging first in Genesis, and characteristic of every major text and rabbinic figure, is the primary importance of distinctions. Judaism sanctifies distinctions. Not only are distinctions holy, but holiness—*kedushah*—means distinction or separation. Understanding itself, *binah*, comes from a word meaning “between,” and the identification of that between-ness is what we call the making of distinctions. Even in the first moments of creation, God creates distinctions, divisions and lines of demarcation between light, dark, heaven, earth, man, animal, land and water. “The intellect (*ha-sekheh*) analyzes and divides the component parts of things.”

The Kalām cannot abide such complexity. With but few exceptions, the Mutakallimūn turn biological processes into mechanical variations. No atom is better fitted to receive an accident than another. This table is just as capable of locomotion as I am, for movement is just another possible accident that can attach to any atom. In this world, a man left his book at home and returned to find it still there, not realizing that, in his absence, it had briefly become a boy.

(The example is from Al-Ghazali, quoted in Averroes’ *Tahafut al Tahafut*, p. 323, Van den Bergh trans., Cambridge, 1987; note Saadia’s previous use of a similar example to demonstrate its absurdity, *Book of Opinions and Beliefs*, Rosenblatt trans., 148).

THE NOTE ON IMAGINATION

1. *The Significance of Imagination*

The Tenth Proposition, of admissibility, is really about the imagination. This is so important to Maimonides that he inserts a *Note* on imagination at the end of his discussion of the Proposition. It is a little chapter to itself and one of the most important sections in the Guide. (Pines styles it “A Call Upon the Reader’s Attention,” page 209; Friedlander just calls it “Note,” page 334; Kafih and Schwarz translations have *he’ara*).

The Relation Between the Dialogue and the Note on Imagination: Maimonides let the Mutakallem win the argument with the philosopher. He portrayed the philosopher trying to explain something complicated to a dogmatist. Many of us been in this position, so we sympathize with the philosopher.

The dialogue gave Maimonides an opportunity to display the force of the Kalām proposition of admissibility in the context of the previous nine Propositions. He says of Proposition X: “It is the best means for proving anything they like.”

The Positive Uses of the Imagination: Imagination is a necessary part of the Maimonidean doctrine of prophecy. He must save it from the Kalām.

Imagination closely connects to what Arabic Aristotelian tradition called “common sense.” Common sense is that faculty which combines data from the five senses and presents it as a unified image to the understanding (Wolfson, “Maimonides on the Internal Senses,” in *Studies*, v. 1, 250-314). The imagination retains and protects these sensory images.

Maimonides had a generally positive view of the trustworthiness of sense-data. It is only through the evidence of the senses, properly understood, that science advances. Nonetheless, we do not use the common sense or the imagination to do the work of intelligence.

This is the “Chapter of Admissibility” (Pines trans.; Kafih: *inyan ha-hitakhnut hazeh*). The Kalām assert, according to Maimonides:

1. Everything that may be imagined is an admissible notion for the intellect, and;
2. The *possible*, according to the Kalām, is possible only from the point of view of the imagination, not from the intellect.

Maimonides wants to demolish the imagination as the sole touchstone of reality. Nonetheless, the imagination possesses several positive roles, which he articulates in various places: 1) *logical* admissibility, which depends to some extent on imagination, remains Maimonides’ strongest argument for the respectability of creation *ex nihilo*; 2) imagination is the critical factor in the processing of prophetic messages, and; 3) imagination is necessary for the superior politician or prince.

2. *Intellect vs. Imagination*

In the first paragraph of his *Note* on imagination, Maimonides hints where he is going. Consider this odd language (p. 209 Pines):

“Know, thou who studieth this Treatise: if you are of those who know the soul and its powers and acquired true knowledge of everything as it really is, you already know that imagination exists in most living beings.”

Kafih suggests that any animal capable of Pavlovian response has imagination. If you hit it, and ring a bell, it will jump when you raise the stick again, or even if you just ring the bell. The animal imagination identifies the bell with the stick. The scholastics called this faculty the “estimative sense.” (Kafih, footnote 39, *ad loc.*; *Selections from Medieval Philosophers*, R. McKeon, glossary, 2:428; *Dictionary of Scholastic Philosophy*, B. Wuellner, page 42).

Beyond that, the language of this opening sentence is mystifying. It uses stylistic turns that Maimonides characteristically uses to signal his esoteric interests. Did I really need to “know the soul and its powers and (have) acquired true knowledge of everything as it really is” (*v’nitbarer lo kol davar kfi amitat mtziuto*) to grasp that a frog recognizes a worm? Why do we need such qualifications to study imagination? The reason is that imagination is a foundation of prophecy, and, thus, subjects Maimonides to the rule against public teaching of *Maaseh Merkava* (Mishnah *Hagigah* 2:1). Moreover, he did not want to leave something as important as imagination in the hands of the Kalām, especially since he planned to use it in the battle with Aristotle.

He begins with a typical discussion of the difference between the intellect and the imagination, linking the latter with animal physicality. Animals combine and retain the evidence of the senses in the “common sense,” which supplies this product to their imagination (Wolfson, *op. cit.* 345). Rabbits recognize wolves before it is too late to run, just as we do. Maimonides’ point was that this sense is not our highest possession.

A Soul without Knowledge Is Not Good. In *Commentary on the Mishnah*, Maimonides catalogued the various parts of the soul, including the imagination (Introduction to *Avot*, *Shemona Perakim*, ch. 1). The imagination preserves and stores sense impressions from the common or estimative sense and combines them with others, sometimes producing fancies that do not exist in nature, like unicorns.

Already, in this early work, Maimonides criticized the Kalām for making the imagination the touchstone for the real: “They thought, or made people fancy, that everything that can be imagined is possible... [despite that the imagination] combines things whose existence is impossible...” The intellect, by contrast, perceives ideas, develops sciences, and makes ethical decisions. Only by the light of the mind do we arrive at definitions, whereby we apprehend the essences of things. The imagination combines; the intellect distinguishes.

“For the intellect analyses and divides the component parts of things, it forms abstract ideas of them, represents them in their true form as well as in their causal relations, derives from one object a great many facts, which—for the intellect—totally differ from each other, just as two human individuals appear different to the imagination...”

Maimonides next makes a powerful moral statement, which we should keep in mind when we meet a Maimonidean discussion of the contrast between the imagination and the intellect. In this statement, he subtly moves to the subject of the *active intellect*:

“Know that this single soul, whose powers or parts are described above, is like matter, and the intellect is its form. If it does not attain its form [the active intellect], the existence of its capacity to receive this form is for nought and is, as it were, futile. This is the meaning of his [Solomon’s] statement: *Indeed, without knowledge a soul is not good* (Psalms 19:2). He means that the existence of a soul that does not attain its form, but is rather *a soul without knowledge, is not good.*” (Commentary on the Mishnah, *Avot 1, Shemona Perakim, Eight Chapters*, trans., Weiss and Butterworth, p. 64, *Ethical Writings of Maimonides*).

The worst part of a soul not being “good,” that is, a soul in thrall to the imagination, is that since the imagination only portrays corporeal images drawn from the senses, it could never *imagine* the incorporeal attribute-less God. Imagination is the true source of the worship of the imaged gods. Maimonides, in the *Note*, wants to rouse us from the darkness of imagination toward the purely abstract conception of God. He exults (Pines trans. 211), “how excellent is this speculation and how great its utility for him who wishes to awake from this dormancy (*ha-alata*—darkness), I mean the state of following the imagination!” (*kama hashuv iyun zeh v’kama gadolo tovato l’mi sh’ratza l’hitronen min ha-alata ha-zu, k’lomar ha-hemshekhut akher ha-dimyon*).

3. *Two Proofs Against the Imagination*

In his *Note*, Maimonides propounded an interesting proof for the superiority of the intellect over the imagination, about men standing on opposite sides on the globe.

“Now it has been demonstrated that the earth is spherical in form and that portions of the inhabited part of it lie at both extremes of its diameter. Thus, the head of every individual from among the inhabitants of the two extremities is near heaven while his feet are near the feet of another individual who is opposite to him. It is thus impossible in every way that either of them would fall. This cannot even be represented to oneself; for one of them is not placed above and other below, but each of them is both above and below in relation to each other.”

Maimonides could not yet have known about gravity. Gravity is the mutual action between masses of matter, by virtue of which every such mass tends toward every other, with a force varying directly as the product of the masses and inversely as the square of their distances apart. The ancients recognized that there was a force tending toward the center of the earth that not only kept bodies upon its surface, but in some way upheld the order of the universe. This was an intellectual conclusion, not the work of the imagination.

That is only the beginning of the story. “Now it has been demonstrated that the earth is spherical in form and that portions of the inhabited part of it lie at both extremes of its diameter.”

This was also an intellectual conclusion. The imagination assumes that the *terra firma* is flat because that is what we see. Nevertheless, two men standing on opposite edges do not fall off as they would if it were flat. Scholars had already proven the sphericity of the earth many times. Still, the imagination cannot portray two men somehow adhering to the round edges of the globe's diameter. As he said,

“It is thus impossible in every way that either of them would fall. This cannot even be represented to oneself; for one of them is not placed above and other below, but each of them is both above and below in relation to each other.”

Each of them is both above and below in relation to each other. To my imagination, the Chinese should fall off the earth; to theirs, I should fall. The imagination is baffled. Maimonides announces the principle:

“Accordingly it has been demonstrated that something that the imagination cannot imagine or apprehend and that is impossible from its point of view, can exist.”

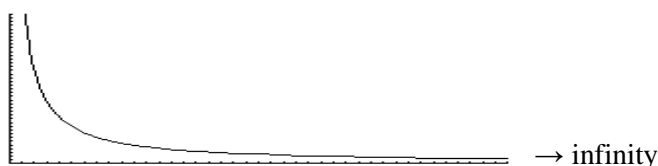
This is the critical step in the demolition of the Kalām's version of admissibility. The unimaginable is indeed that which “can exist.” And the corollary:

“It has similarly been demonstrated that something the imagination considers as necessary is impossible—namely, that God, may He be exalted, should be a body or a force in a body. For according to the imagination, there are no existents except bodies or things in bodies.”

The imagination cannot portray incorporeality. Any frog can recognize a worm, but no frog can imagine God.

Maimonides has a second wonderful proof that we cannot rely on imagination. He draws on the principle of the asymptote.

Think of it this way. My brother is ten years my junior, and so, at first, I was ten times older than him; but when I turned twenty, he was only half my age; at thirty, he was two-thirds my age; at forty he was three-quarters my age; and so on. He continually approaches my age in infinite time but never attains it. If you graph this relation, you produce the asymptotic curve:



But the Kalām cannot imagine infinity of any kind (Proposition XII). The imagination cannot portray a curve infinitely approaching the straight line without ever touching. Only the intellect can produce such a real curve. This curve also expresses Aristotle's time/space/motion continuum, because the diminishing area between the parabola and the reference line divides infinitely.

This curve aptly portrays the Maimonidean concept of the relation of man to God. As the good soul “attains its form” by acquiring intellect, it approaches infinitely close to God but never touches Him.

(The asymptote is from Apollonius of Perga c. 262 BCE—c. 190 BCE. Maimonides cites his famous book, the *Conic Sections*, by name, referring to section 2:13, p. 53 in T.L Heath's trans., Cambridge, 1896. Apollonius was a successor of Euclid and an important predecessor of Ptolemy.)

4. Maimonides Turns Against the Philosophers

Now comes the final step in the argument of the *Note*. Maimonides reminds us (Pines' translation): "This is the Chapter of Admissibility...It is not something one hastens to reject in its entirety with nonchalance." Will he now turn to defend the Kalām's proposition of admissibility?

The problematic appeared when some Kalām spokesmen admitted the intellectual impossibility of some things, without abandoning the criterion of imaginative admissibility. The philosopher responded, but not, as you might have expected, by asserting that the criterion must be the intellect.

"For if the philosopher says, as he does: That which exists (*ki ha-mtziut edi*) is my witness and by means of it we discern the necessary, the possible, and the impossible; the adherent of the Law (*ish daat* / אלמתשרע) says to him: The dispute between us is with regard to this point. For we claim that that which exists was made in virtue of will and was not a necessary consequence. Now if it was made in this fashion, it is admissible that it should be made in a different way, unless intellectual representation decides, as you think it decides, that something different from what exists at present is not admissible." (Pines' trans., 211)

The "adherent of the Law" wins this argument. This "religionist," as Friedlander called him, is really a third voice in the dialogue, the voice of Maimonides himself, although he mildly camouflages himself as this *ish daat*. He rejects the philosopher's assertion of causal necessity in favor of divine choice.

The methodological stakes are high. "We wish consequently to find something that would enable us to distinguish the things cognized intellectually from those imagined." A philosopher's stone? Perhaps. We must distinguish things *admissible* to the imagination from things *admissible* by the intellect. The most important of these things are the two most necessary to religion: divine existence and divine creation.

The philosopher limited the reach of the mind when he said "That which exists is my witness (*ki ha-mitziut edi*) and by means of it we discern the necessary, the possible, and the impossible." The Aristotelian accepted a plenitude of corporeal "gods," that is, a cosmos of powerful *natural* agents. His philosopher's stone is the reality of nature, "that which exists," the necessitous spinning out of the natural order. He says that the alleged creation *ex nihilo* is fantasy, for matter is neither created nor destroyed. *Ex nihilo nihil fit*, from nothing nothing comes. However, by making "that which exists" the test for what exists, the philosopher commits the logical fallacy of *petitio principii*, "begging the question," assuming the conclusion he seeks.

Maimonides contested this because he recognized the real limits of this knowledge. The philosophers based their conclusions only on what they knew. But the nature of the universe is unknown.

Logical Admissibility. Still, Maimonides was not about to destroy "that which exists" just to defend the doctrine of divine creation. Man must be able to stand on the globe without falling off. The undermining of "that which exists" had been the goal of Kalām, their way of defending divine creation. But this demeaned the seriousness of the Jerusalem/Athens debate. If we destroy the natural order of "that which exists," then God did not create our world, but only a meaningless array of atoms.

We can recover the seriousness of that debate, if we can discover some criterion for admissibility. This he does not yet provide. "And about that I have something to say, which you will learn in various passages of this Treatise." His real doctrine on "admissibility" is scattered through the Guide for the qualified student to find on his own. I reconstruct it in the following manner.

The student first must recognize that Maimonidean admissibility is a *logical* doctrine, not a basis for the liberation of the imagination.

Maimonidean admissibility questions the [Avicennan] philosophers' assertion of the necessary emanation of the universe. If the universe were necessarily emanated, it must be the way it is. Religion, by contrast, argues that God *wills* the creation of our world as it is, but could have willed it otherwise. The philosopher replies that its basic nature never changes.

But how does he know? There is no deductive argument to prove that God could not have created the world from nothing. *Ex nihilo nihil fit* is a good rule for men, but it does not tell us what God could do. It holds sway only in the sublunar sphere. Logical admissibility became Maimonides' argument for the respectability of creationism.

Some critics assert that in the final paragraph of the *Note*, Maimonides created a new Jewish Kalām. Leo Strauss once called him an enlightened *mutakallem* (*Persecution*, 41). I think this goes too far, since it neglects his restriction of admissibility to logic. Consider what Maimonides said, in the name of the "adherent of the Law":

"That which actually exists, has, according to my view, been produced by the will of the Creator, not by necessity; just as it has been created with that special property, it might [admissibly] have been created with any other property, *unless the impossibility which you postulate be proved by a logical demonstration.*" (Friedlander trans.; Kafih: *ele im khen yakhlit ha-tziur ha-sikhli sh'lo ytakhen*).

Restated: The universe, according to Maimonides, is by divine will created from nothing rather than by necessary eternal emanation from God. This is an admissible assertion, unless the philosophical opponents prove that God could not have willed creation. But they cannot deduce this unless they can show that creation is a divine impossibility.

Examples of divine impossibility are that God can neither square circles nor eliminate Himself, both of which involve tampering with essential definitions. It is not a definitional impossibility for God to create the universe from nothing. The philosopher merely projected upon God our inability to make something from nothing. But this is the projection of his imagination, not his reason. God is not constrained by the habitual nature of reality. Thus "that which exists" is no criterion for God, who can do what He wants, just as the Sultan could walk rather than ride through town.

What does constrain God is the fixed nature of the impossible, which is to say, essential or definitional impossibility. If the admissible is not logically impossible, then God could will its existence.

For Maimonides, miracles, including creation, are not figments of the imagination, but logically admissible. Maimonides carefully expressed the point this way, "it is perfectly true that no notion whatever can be formed of those things which they (the Kalām) describe as the impossible (i.e., definitionally impossible), whilst a notion can be formed of what they consider as possible." Nonetheless, we cannot look to the imagination to supply the proof that the possible really is possible.

PROPOSITION XI: NO INFINITE

Muslim and Greek Opposition to the Infinite: The Eleventh proposition is that there is no infinite. The Kalām opposed all conceptions of infinity because of the Qur'an's statement that "He counteth all things by number" (72:28). That is, Allah counts the set of all numbered things, a *finite* set. 'Abd al Qāhir Baghdādī, (d. 1037), a Kalām figure, held that believing in an infinite "would force us to conclude that its parts are not limited in God's knowledge, but this involves a rejection of the Prophet's saying 'He counteth all things by number'" (quoted in Wolfson, *Kalām*, 470).

A deeper reason is that although Muslims believe that the universe was created *ex nihilo*, they also believe that it will be destroyed. The *qayāmah*, judgment day (literally: resurrection) is the day on which all creations will be

destroyed, even angels, followed by the resurrection of the believers. The Qur'anic universe is finite, both from its creation (*a parte ante*) to its destruction (*a parte post*). We have already seen that these considerations drove the Kalām to debate how God could cause destruction; that is, whether destruction comes when God stops creating, or whether there is a free-standing accident of destruction.

Apart from Qur'anic considerations, how can we explain the ancient prejudice against the infinite? Why did medievals accept its alleged untraversability? Herbert Davidson suggested that the principle of untraversability was “legerdemain.” Moderns are much more comfortable with infinity. “As a mere fact of anthropology one may mention that it is now virtually impossible to instill a general skepticism about infinite numbers among freshmen in philosophy or mathematics who have had a good high school education.” (James Thomson in the *Encyclopedia of Philosophy*, v. 4, 186, Macmillan, NY 1967; Davidson, *Maimonides, The Man and His Works*, 358; see my explanation of untraversability at Guide 1:69).

Perhaps the horizons of ancient thinkers were narrower than our horizons. Their universe was large, but only a little more so than the immensity they could see with the unaided eye in the night sky. We now know that what we see, even with a standard telescope, is only the tiniest part of the known universe.

The ancient Greeks explained the prejudice against the infinite differently: they understood “infinity” as *apeiron*, from *peras*, which means “limit.” A tradition (Anaximander, Pythagoras, Plato, Plotinus) developed the “limit” to mean form, number, the numerable, the idea, the good, and ultimately the divine. “Unlimited” implied disorder, chaos, the mob, matter, and, ultimately, evil. Plato’s divinity, the demiurge, is the craftsman who imposes order on matter to make it good; but, like any craftsman, the demiurge is *limited* by the nature of his materials, i.e., necessity. The gods could not be infinite without being evil.

It is also true that Aristotle needed God, the unmoved mover, at the beginning of all causal chains, because there could be no infinite regress of causes. It had to start somewhere. Similarly, the major medieval religious philosophers rejected the possibility of an infinite causal regress, including Rabbis Saadia, Ibn Pakuda, Ha-Levi, Maimonides, and, in Islam, Averroes. (Davidson, *ibid.*, p. 358; Wolfson, *Crescas’ Critique of Aristotle*, p. 492-493.)

Maimonides was aware that philosophical developments had brought new subtlety to the discourse on infinities. Especially with Avicenna (980 – 1037) we start to hear a critical attitude toward untraversability, together with a readiness to accept the existence of an actual infinite, or at least to confine its impossibility to a small number of allegedly demonstrable cases. (For a brief clear survey, see Jon McGinnis, “Avicenna and Infinity: a Select History of the Infinite through Avicenna,” *Documenti e Studi*, 21:199–222, 2010, www.umsl.edu/~philo/People/Faculty/McGinnis%20Works/Avicennan%20infinity.pdf.)

The Four Infinities: Maimonides classifies four types of infinite. The first three are impossible, while the fourth is, at least, intellectually conceivable. These are: 1) An infinite body; 2) An infinite number of finite bodies together; 3) an infinite succession of causes, (known as the “essential” infinite, *ha-atzmi*). 4) The fourth type includes the “potential” and the “accidental” infinite (*b’koakh o b’mikra*).

Maimonides agreed with the Kalām that the first three types of infinite must be rejected. He discusses this more in the next chapter, but the basic idea of the first two types is that an actual infinite body or group of bodies would have to be something definite, but if it is definite, it cannot be infinite. The reason for the rejection of the third type is untraversability.

The “*potential*” infinite of the fourth group is the possible infinite division of a body. It is a corollary of the space/time/motion continuum, as in the case of the asymptote, which is an infinite division. It is called “potential” since we cannot actually complete this infinite division. If we could, it would not be infinite. It is conceptual, something we can only potentially do. Maimonides believed that matter and time are potentially

infinitely divisible, as did all Aristotelians. The existence of potentially infinitely divisible magnitudes was integral to his rejection of indivisible physical atoms and time atoms.

The “*accidental*” infinite describes the succession of accidents in matter, one after another into infinity, as moment follows moment in time. We call it “accidental” because it describes the infinite replacement of “accidental” forms in matter. It would be “essential” and not “accidental” if those successions *caused* each other. Every time a substance and its attendant accident is established, it must be preceded by the removal of the previous set of accidents in that material substrate, *b’vo zeh akher sur zeh*. This kind of infinite by succession works, so long as this succession is not a causal succession. The rule against untraversability only applies to *causal* chains.

Maimonides believed in the “potential” infinite, and that the “accidental” was theoretically possible.

Time was just such an accidental non-causal succession. If, as the Aristotelians assert, the universe is eternal, then the succession of present moments, “nows,” could proceed infinitely. Each “now” disappears as it passes. It is not the cause of the next “now.”

Avicenna had established that there was no proof against the existence of infinities, unless its members all existed together at the same time, or unless they succeeded each other, in something closely resembling numerical order. Jon McGinnis calls these two necessary conditions for the rejection of an infinity the “wholeness” and “ordering” conditions. Infinities like time, motion, generational successions, and collections of immortal souls do not satisfy these conditions, and, so, are not demonstrably impossible infinities. If we assume, *arguendo*, as Maimonides says we must, the existence of an eternal universe (as Avicenna did), then we should allow for the potential existence of these accidental infinities, even if we will come to reject the actual existence of some of them.

The Problem of the Accidental/Successive Infinite. Maimonides only conditionally accepts the “accidental” successive infinite. He accepts it only *a parte post*, i.e., into the future, not *a parte ante*, from the past.

Maimonides believed that God created the universe from nothing as a perfect creation, with an eternal future. It must be eternal in its future because God’s work is a perfect work, which He will never destroy. This contradicted the Kalām conception of the universe, which was finite in both directions, from creation to destruction.

Some Mutakallimūn maintained that the denial of the accidental infinite by succession was *self-evident* (*v’yesh mehem sh’amar ki zeh muskal m’atzmo u-moven b’iyun rishon v’ayn tzarikh l’hokhikho*). Maimonides replied that if a succession of accidents in matter were self-evidently false you would need nothing more than Proposition XI to disprove the eternity of the world. But the philosopher could reasonably respond that if an eternal emanator kept up its emanations forever there would be no end to the succession of accidents in matter, or to the succession of moments in time (Wolfson, *Kalām*, 428-429).

We see this more clearly in the next chapter, Guide 1:74, where Maimonides portrayed the seven Kalām arguments against the eternity of the universe. Some of those arguments specifically array themselves against the existence of any kind of infinity. One example was that any list of generations always goes back to Adam. It is like the argument that if we find a Swiss watch on the moon, someone must have put it there. While true of the timepiece, it does not get at the problem of the succession of generations.

Generational succession looks like a causal chain, but was not one. Aristotle had based his eternalism on the idea that forms *succeed* each other in matter infinitely (Wolfson called this “eternal rectilinear succession”). They do not cause each other, but only replace each other.

This includes the eternal succession of moments in time. Maimonides rather carefully says of this infinity of time that it is “not necessarily erroneous,” and of the infinity of temporal succession: “Nor is it absolutely wrong.” Clearly, it is not self-evidently wrong. He shows that the infinite by succession is not “absolutely wrong” in several ways.

First, he points out that each of the items in the succession, say, of the succession of the Patriarchs and their seed, is itself finite. While it assumes an original member, i.e., Abraham, we know nothing about his eventual progeny. The Kalām made such succession into a defined set, i.e., a succession until now, and then claimed such a set could not possibly be infinite. But why couldn’t there be infinite future members?

In Guide 1:74, Maimonides makes the case: “For they count their nonexistent individuals and act in imagination as if they were existent (now), and as if they had some beginning, and, therefore, add to the objects of fantasy or subtract from them.” (Pines’ trans., 222). This applies to most of their proofs. They would count the dead and departed together with the living, and then reject an infinite regress of their souls. If the Kalām were right, the generational succession would meet Avicenna’s “wholeness” requirement, in which impossible infinities always constitute a definite whole. But generational successions are not causal arrays or defined sets.

Time also is not an impossible causal infinite, since one moment does not cause the next moment. In the next chapter, Maimonides adds another example: the spheres rotate eternally, and we should expect them to do so, since circular motion does not require a limit, as does straight-line motion.

Maimonides hints that some members of the Kalām thought they had a good argument against the infinity of time. He did not give that argument until the next chapter (7th Argument). They claimed that “no infinite can be greater than another.” The argument is that different infinities exist, which is absurd, and therefore any infinite is absurd.

The typical example is that two different planets revolve eternally at different speeds, but then one infinite must be longer than another. Avicenna’s answer was that the Mutakallimūn were not properly comparing these “different” infinities, since they failed to distinguish between “infinities” and “wholes” (see our account in the next chapter). We now reject the alleged absurdity by saying that there can be different kinds of infinite sets, thanks to the discovery of transfinite sets by Georg Cantor (1848-1914).

PROPOSITION XII: THE UNRELIABILITY OF SENSE DATA

The Twelfth Proposition is that the senses are not trustworthy. The Mutakallimūn revived the sense-data skepticism of the ancient sophists, anticipating the eighteenth century British empiricists Hume and Berkeley. This revival of systematic skepticism finds its modern reflection in post-modernist perspectivism. The Aristotelians, very much including Maimonides, opposed this radical skepticism.

Maimonides recapitulates the skeptical arguments nicely. They state that the senses do not correctly perceive remote objects, and are subject to sickness and illusion. But Maimonides thought that when the senses are healthy, they are a good source of evidence (*Letter on Astrology*). He held that they are the second most trustworthy source of evidence, the first being mathematics, and the third being revelation.

His position encouraged scientific development, for we must rely on our senses, within their known capacities, to draw conclusions about existence. We can see the bad effect of systematic skepticism on Islamic science. The Arab world is no longer known for scientific inquiry.

(Bernard Lewis, *What Went Wrong*, Harper, 2003. Prof. Peter Adamson, in his excellent history of philosophy podcasts, disagrees. In written colloquy to podcast 171, “Eastern Promises,” he blames the Industrial Revolution for the retardation of the Muslim scientific endeavour, but this merely pushes off the question of why some philosophical worldviews support capitalist revolutions while others do not.)

Maimonides argues that sense-data skepticism is nothing but sophistry (*sofistanion*, Jud.Ar.: אלסופיסטאנין). The sophists were orators for hire who were able to increase their fees by advancing extreme and even contradictory opinions. They were the opponents of Socrates. Sense-data skepticism was a staple of their diatribes.

In the *Treatise on Logic*, Maimonides defined the sophistic argument:

“There is also a kind of syllogism used for deception and falsehood, where one or both premises are such wherewith or wherein a man errs or falsifies in any one of the syllogistic moods. Such syllogisms are called sophistic, and the making thereof and the knowledge of the ways in which people deceive and utter falsehoods constitute what is called sophism.”

The pagan priests used such arguments to twist people from honoring God’s celestial servants to worshipping the stone images of those servants (Mishneh Torah, *Avoda Zara* 1:1-2). The sophists had a bad reputation with the philosophers, from Socrates to Maimonides.

Maimonides placed this Proposition in the final position in his list because the Mutakallimūn found it so necessary (*hekhrahit meod*). They hurled the unreliability of sense-data in the face of anyone who asserted that reality contradicted their dogma. It was readily available whenever anyone doubted, that, for instance, millstones shatter and reassemble from moment to moment, though no one had ever seen this happen. They would simply respond that the evidence was withheld from our misleading senses.

The doctrine of the unreliability of the senses is not as important as the doctrine of admissibility, which Maimonides placed at the all-important tenth position. Unlike Proposition XII, Proposition X, admissibility, is the one that Maimonides must take seriously, for logical admissibility was the core of his retort to Aristotle’s eternalism.

MAIMONIDES CRITICIZES THE ATTEMPT BY THE LATER KALĀM TO DROP ATOMISM

There is a difficult passage in this section:

“Do not think that agreement of the Mutakallimūn in affirming this premise is gratuitous. That would be similar to the belief of the majority of the later Mutakallimūn that the wish of their predecessors to establish the existence of the indivisible particle did not correspond to a need (*ayn lo tzorekh*). In fact, all their assertions that we have set forth in the foregoing passages are necessary; and if one premise were to be destroyed, the whole purpose would be destroyed. Indeed this last of the premises is most necessary.” (Pines trans., 214)

Maimonides distinguished between the early and later Mutakallimūn, that the latter thought that the work of the former to establish atomism was unnecessary work (*ayn lo tzorekh*). These later Asharite theologians had objected to their Mutazila predecessors’ appropriation of foreign ideas. Wolfson explains: “Of the Orthodox, Ibn Kullab...was opposed to atomism...Orthodox thinkers, who were disinclined to commit themselves to atomism were Ghazālī and Fakr Al-Din Rāzi” (*Kalām*, 495, note 1). Regarding Ghazālī’s ambivalence, “He once refrained from using atomism as an argument for a certain religious belief, on the pretext that atomism involved difficulties which would take too long to solve.”

Along these lines Even-Shmuel wrote (my trans.):

“The later Mutakallimūn did not acknowledge atomism, despite their agreement with the other propositions. The striving of the early Mutakallimūn to establish atomism was unnecessary [in their

view]. To the contrary, all the propositions were necessary. If it were to appear that any were unnecessary, that would necessarily result in the nullification of the entire system, just as Maimonides proved above (at the end of Proposition X, before the *Note* on Imagination).”

In other words, the later theologians, such as Ghazālī, who were willing to use philosophic methods to establish demonstrative rather than merely rhetorical arguments for Kalām positions, even going so far as to drop the first several Propositions, stumbled, since without those Propositions the entire Kalām project would fail.

MAIMONIDES’ INFLUENCE ON LEIBNIZ— THE POSSIBILITY OF MIRACLES

Lenn Evan Goodman has shown that Gottfried Wilhelm Leibniz (1646 – 1716), famous for his monadology, developed the central notion of his philosophy under the influence of the Guide of the Perplexed, and, specifically, of our chapter.

Leibniz resolved the antinomy of natural necessity and divine volition by positing a universe of “compossible” worlds, i.e. monads. These monads are unextended beings, each of whose predicates spin out naturally, but God selects only the best possible monad among them. His choice may be motivated by the promptings of morality, but never by logical necessity.

Thus, the monad’s own nature is given, but the choice among those monads is not given. God’s choice is free. Goodman explains:

“This idea of Maimonides, that the world may contain necessities of its own, relative to the system of its interaction, while not containing any necessity of existence, is the foundation of Leibniz’ idea of God’s selection of the best of all possible worlds. Many worlds are conceivable which do not violate the laws of logic.... The difference God made, which Maimonides sought from the Philosophers, is given by Leibniz as the free selection of the best.” (L. E. Goodman, “Maimonides and Leibniz,” *Journal of Jewish Studies*, 31, 1980, page 221; the essay develops the impact of Guide 1:73 in intellectual history.)

This reminds me of the Midrash:

“The Holy One, blessed be He, went on creating worlds and destroying them until He created this one and declared, this one pleases Me; those did not please Me.... : This is R. Abbahu’s reason: ‘And God saw everything that He had made, and, behold, it was very good’ (Gen. 1:31): this pleases Me, but those did not please Me.” (*Genesis Rabbah*, 3:7)

Maimonides maintained the existence of miracles against the Aristotelian assertion of necessity in nature, and against the Kalām collapse of reality as a whole into the purely miraculous. In this, Leibniz follows and builds upon the Maimonidean foundation. While nature, as given in the particular monad’s universe, is as it always is, what is always is not the same as what is necessary.

Leibniz said “miracles...cannot be accounted for by the natures of created things” (*Theodicy*, trans. E. M. Huggard, London, 1951, p. 207). Miracles are not explainable from the nature of God’s creations, from “that which exists.”

God is not compelled by any subordinate laws of the universe, “but acts, as it were, by a private miracle” when He makes His choices. (Leibniz, “Clarification of Bayle’s Difficulties,” in *Leibniz’s ‘New System’ and Associated Contemporary Texts*, Woolhouse and Francks, Oxford, 1997, 205).

The miracle comes from God and not from finite substances, such that there is nothing in the nature of a staff to make it become a snake, or for the snake to revert to being a staff. Only God's choice explains such a miraculous breach of the natural order. God makes His choice within the plenitude of infinite realizable possibilities.

CONCLUSIONS

Maimonides essentially accused the Kalām theologians of constructing their physics to support their ideology. Atomism, the liberation of the imagination, and the denial of our senses, together removed the need for them to debate the philosophers.

Their victory was hollow. An enormous job of reconstruction was necessary to get back to what was needed, the articulation of the twin miracles of *Maaseh Bereshit* and *Maaseh Merkava*, creation and providence.

This is what forced Maimonides, in this chapter and the succeeding chapters of the first book of the Guide of the Perplexed, to act as the defense attorney for the philosophers, despite that he would eventually have to become their prosecutor.