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On Meillassoux, Necessity and Belief

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> *Es hat niemals eine Zeit gegeben, in der ich durch mich selbst von meinem Leben überzeugt war. Ich erfasse nämlich die Dinge um mich nur in so hinfälligen Vorstellungen, daß ich immer glaube, die Dinge hätten einmal gelebt, jetzt aber seien sie versinkend. Immer, lieber Herr, habe ich eine Lust, die Dinge so zu sehen, wie sie sich geben mögen, ehe sie sich mir zeigen. Sie sind da wohl schön und ruhig. Es muß so sein, denn ich höre oft Leute in dieser Weise von ihnen reden.*
>
> —Kafka, "Gespräch mit dem Beter"

One billiard ball strikes another, and the second is moved in a certain way by the impact. The movement conforms to the expectations of an observer, and is in accord with formulated laws of force and motion. The problem of induction states that:

> 1) the observer had no guarantee prior to observation of the event that it would proceed in accord with his expectations; and
>
> 2) the result of the impact on this occasion, even if in accord with similar events in the past, furnishes no guarantee that a similar impact will produce similar results if repeated.

There is nothing to guarantee that the balls might not have or might not in the future jump up from the table, for example, or turn into a pair of mares; in short, that anything might happen. One must be careful to distinguish this statement from the statement simply that anything might happen. This latter, which we could formulate as, "It is not necessary that the balls should have conformed or in the future will conform to an observer's expectations" cannot be made; it is not necessarily true. It might be false; the impact may indeed be governed by a necessity which is absolute, but it is a necessity which is inaccessible to human reason. To imagine other outcomes to that

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observed entails no contradiction in reasoning, and so the necessity of the impact's conformity to stable laws cannot be asserted; this ability to imagine other outcomes, however, does not itself warrant the assertion of non-necessity, or of contingency. Asserting no guarantee of necessity in the matter for the observer does not give warrant to assert that there is no necessity simply. With Hume, one can always see that the problem of causality is already the problem of first principles, or of the final cause; final causes remain inaccessible to human reason, and in this resides, ultimately, the problem of induction. In the assertion of the obscurity of final cause, Hume was in agreement with Descartes (and Descartes in his turn with Bacon), but it is Hume who draws the most radical conclusion. This much was grasped readily by Nietzsche, not ordinarily the best reader of Hume.[1] The truth or falsity of a law is therefore finally unverifiable; Hume's position points us toward truth and falsity becoming functions of human reason, in other words toward the correlationism with which Kant would oppose his skepticism, and toward modern forms of antirealism.

Hume, of course, offered his own "skeptical solution" to the skeptical doubts concerning the operations of the understanding. He proceeds by enquiring as to the origin of or reason for our belief in relation to cause and effect, which is the basis of all of our reasoning and belief concerning matters of fact. He will ground it, as every reader of Hume knows well, in custom.[2] Meillassoux's summary of the move is perfectly adequate:

> Since we cannot demonstrate the necessity of the causal connection, [Hume] argues, we should stop asking ourselves why the laws are necessary and ask instead about the origin of our *belief* in their necessity. This amounts to a relocation of the problem that replaces a question about the nature of things with a question about our relation to things – one no longer asks why the laws are necessary, but why we are convinced that they are. Hume's answer to this question can be summed up in a single word: habit, or custom. When a fact recurs, it engenders in us a spontaneous feeling of habituation which gives rise to the certainty that the same thing will re-occur in the future. It is this propensity to believe that what has already recurred will invariably recur in the same way in the future that governs our entire relation to nature.[3]

Kant's boldest statement of his so-called "scheme-content dualism" is perhaps that the categories prescribe laws to appearances, and therefore to nature itself as the totality of appearances.[4] We may presume such a statement to indicate that laws, for example of motion and gravitation, may be manifestations of processes in nature—and hence not in any strong sense "invented" by man—but that they manifest themselves to us only within

space and time and in relation to phenomena, which are dependent on the categories. Hence, such laws insofar as they can be formulated can be formulated only in their relation to human perception; how and whether they act upon or pertain to things in themselves is outside the scope of human reason. It is not difficult to trace a line of philosophical descent from the "Copernican revolution," which centered the subject and made him the imposer of forms on the world (even space and time, the "pure forms of intuition"), to the modern antirealist and anti-foundationalist elements associated with the twentieth-century "linguistic turn." What must be remembered, and what ought to be clear enough from Meillassoux's summary of Hume's solution, is that whenever we encounter or hear repeated the Kantian chestnut from the *Prolegomena* about the recollection of Hume interrupting his dogmatic slumber, we must take account of two elements of Hume's critique. If it (supplemented with reflection on the "antinomies of pure reason") was the flint upon which Kant sparked his critical philosophy, this was not only because the radical denial of *a priori* knowledge spurred Kant to response, but also because Hume, in his "skeptical solution," must have pointed the way to the Kantian response. Kant's critical philosophy wished to salvage the *a priori* (and later, morality), and therewith a sure foundation for human knowledge. Hume, who we shall insist was also salvaging a form of necessity via belief, institutes what can only be called a form of correlationism.

Meillassoux asserts that, just the same as those who provide "metaphysical" solutions, or Kant with his "transcendental" solution, "Hume too never really doubts causal necessity – he merely doubts our capacity to ground [it] through reasoning . . . In all three cases, the question is never whether causal necessity actually exists or not but rather whether or not it is possible to furnish a reason for its necessity"[5]; and in this he is quite correct. The situation is for Meillassoux therefore a strange one, where philosophers ignore reason and favor the evidence supplied by habit and the senses:

> How could reason, for which the obvious falsity of causal necessity is blindingly evident, work against itself by demonstrating the truth of such a necessity? It is our senses that impose this belief in causality upon us, not thought. Thus, it would seem that a more judicious approach to the problem of the causal connection would begin on the basis of the evident falsity of this connection, rather than on the basis of its supposed truth. In any case, it is astonishing to note how in this matter, philosophers, who are generally the partisans of thought rather than of the senses, have opted overwhelmingly to trust their habitual perceptions, rather than the luminous clarity of intellection.[6]

It must first be pointed out here that what Hume is said to doubt is in fact what, as we pointed out in our opening paragraph, he can legitimately doubt. The error here is to speak, on the basis of the evident non-necessity of a guarantee for reason of the principle of causality or the uniformity of nature, of the "obvious falsity" of the principle, or of the laws of nature. Such a statement, as we have explained, is not sanctioned by the problem of induction (in fact, it is rather debarred than warranted by pointing out or accepting the inaccessibility of final causes to reason). There may well be a governing necessity; that such cannot be accessed in such a way as to serve as *a guarantee to observing reason* of the uniformity of nature cannot be taken to imply that no governing necessity is present, or that the principle of causality is false. Recall that the rejection of the ontological argument in Kant and Hume proceeds from the insistence that the apparent conceivability of an entity can never impose or guarantee its existence.[7] Neither could conceivable inexistence impose inexistence. Analogously, just as conceivability of the laws of nature cannot impose their truth, the mere conceivability of their being otherwise or unnecessary cannot produce, or deduce, or "impose" their falsity.

What of the claim, then, that the skeptical solution is the most incoherent, and that Hume exhibits a blind faith in the evidence of his senses in maintaining (by not doubting) the necessity of causal connections?[8] Certainly Hume locates necessity in demonstrative rather than moral reasoning—reasoning which is not open to doubt because the negation or denial of its truths entails a contradiction. The principle of non-contradiction guarantees the truth of these "relations of ideas." The claim that certainty or necessity pertains only to relations of ideas might seem to mark Hume as typical of the modern philosophical tradition, for which demonstrative truth is not only accessed by reason (rather than the senses) but is a property of reason's own constructs.[9] Hume, however, is different in crucial respects. Hume is emphatic in his assertion that all ideas are ultimately derivative from impressions; we know him as the most extreme of the empiricists. The ideas which are related in demonstrative reasoning derive from sense experience; though a perfect circle is not found anywhere in nature, yet it is not a mere construct of the mind or product of spontaneous reflection: rather it is suggested by its approximations in nature: derived, for example, from observation of a whirlpool, or the apparently perfectly spherical full moon.

The emphasis of the claim that all knowledge is *a posteriori* means that for a Humean, even the principle of non-contradiction (considered epistemologically rather than ontologically), which is evidently necessary and an object of demonstrative rather than moral reasoning, must have its ultimate origin in impressions (even those ideas which are never directly experienced are formed ultimately either by analogy with prior experience or derived from extension of former ideas rooted in experience). Hence Meillassoux is imprecise when he writes: "As for the principle of non-

contradiction, it allows us to establish *a priori*, and independently of any recourse to experience, that a contradictory event is impossible, that it cannot occur either today or tomorrow. But for Hume there is nothing contradictory in thinking that the same causes could produce different effects tomorrow."[10] The imprecision is in writing as if the *a priori* is original in Hume, as it is with Kant (a property of the categories), and not derived from experience. Even the principle of non-contradiction, as a principle, is not present in the mind prior to some experience of a contradiction, or the reasoning upon it, and recognition of the unthinkability of a contradiction. Similarly, it is potentially misleading, in discussing the "massive difference" between possibilities actually experienced in the empirical realm and those possibilities which are conceivable, to call the latter "the *a priori* or "imaginary" possibilities."[11] The content of the imagination in Hume is also derived from sense impressions—not, obviously, that one can imagine only what one has experienced directly, but the analogy or assembling of parts that goes into forming images is a faculty grounded in experience. Again, it somewhat misrepresents "the situation [of] Hume pondering his billiard balls" to say: "for each event given in experience, we can conceive *a priori* of a great many different empirical outcomes . . . all of which appear to us to be equally possible."[12] Not that the imagination falters or encounters a contradiction if imagining any such outcome; the issue is that imagination of these outcomes is derivative from originary experience or sense-impressions, and the imagination itself is not *a priori* in an originary way.[13] Meillassoux's speculative position, he notes, must:

> . . . finally take seriously what the Humean – not Kantian – *a priori* teaches us about the world, viz., that *the same cause may actually bring about 'a hundred different events'* (and even many more). What Hume tells us is that *a priori*, which is to say from a purely logical point of view, any cause may actually produce any effect whatsoever, provided the latter is not contradictory. There can be no doubt that this is the evident lesson of reason, which is to say, of the thinking whose only fealty is to the requirements of logical intelligibility – reason informs us of the possibility that our billiard-balls might frolic about in a thousand different ways (and many more) on the billiard table, without there being either a cause or a reason for this behaviour. For if reason knows of no *a prioris* other than that of non-contradiction, then it is perfectly compatible with reason for any consistent possibility to arise, without there being a discriminatory principle that would favour one possibility over another.[14]

The relations that obtain between the ideas that are the objects of demonstrative reasoning are, ultimately, no less than the matter which is the

object of the principles of association (resemblance, contiguity, causality) by which moral reasoning proceeds, derived from experience. As Meillassoux's passage makes clear, there are Kantian and Humean *a prioris*; but of the latter, we might say that with Hume, the *a priori* is *a posteriori*. The truths of geometry do not spontaneously arise in the mind; they are derived, for example, from original reflection on approximations of geometrical shape in nature, or, as with most people, they are known through schooling. This is the important point: with Hume, reason dictates to us what is necessarily true, but reason is never considered wholly apart from the senses, which provide the originary experience on which reasonings of every kind are built. Hume's is not that Cartesian reason which furnishes "clear and distinct" ideas through reason turning in upon itself.[15] It follows that even in trusting reason, one is trusting what is partly built on the senses—and so to return to or implicitly trust in what is 'imposed on us by the senses,' that is, the belief in the uniformity of nature, is not as inconsistent or contradictory as Meillassoux considers it. With Hume—Meillassoux recognizes this—there is an element of reasoning in trusting in custom, though he considers it, following Vernes, a probabilistic reasoning, which he rejects.[16] Because for Hume even that demonstrably true knowledge the denial of which would entail contradiction is built on originary experience, he does not consider the dictates of reason to be divorced from experience. For Hume to consider himself to be obeying dictates entirely divorced from experience would require him to be (and for us to consider him) a quite committed rationalist. So it is not unreasonable for Hume to consider that sense-experience would furnish a "discriminatory principle" or "principle of preference" in regard to matters of fact.[17] With relations of ideas, the discriminatory principle is that of non-contradiction; with matters of fact, it is the considerably weaker one of habituation, but belief on the basis of custom is likewise a product of reasons and experience. To repeat in another way our earlier point, then: that reason can conceive of manifold possible outcomes in matters of fact does not mean that the contingency of the laws of nature is "the evident lesson of reason." The fact that we can conceive of different possibilities equally in no way implies that the possibilities are necessarily equal. Obscurity of final necessity in the laws of nature does not imply their contingency, and the mere fact of non-contradiction in the imagination can hardly serve as the basis for positive knowledge. Nor can it preclude sense-experience furnishing a principle of preference: it does so in demonstrative reasonings, through (knowledge of) the principle of non-contradiction.

In what does Hume's 'correlationism" consist? Recall Meillassoux's summary of Hume's skeptical response as "a relocation of the problem that replaces a question about the nature of things with a question *about our relation to things* – one no longer asks why the laws are necessary, but why we are convinced that they are"; the feeling of certainty engendered by habit "*governs our entire relation to nature*" (my emphases). Hume has shifted focus from nature or the laws of nature to our relation to nature and how those

laws appear to us.[18] By this move Hume is hoping to reinstate necessity in our relation to matters of fact. This is done by asserting the necessity of certain beliefs. In demonstrative reasoning, the negations of whose propositions would be contradictory, the reasoning is accompanied by a sentiment of belief; reason tells us these truths are necessary, and it is therefore necessary to believe them. Obviously Hume cannot hope for similar logical necessity in matters of fact. He can, however, divorce belief in these matters from the will. The sentiment of belief, though it is impossible to define, is nevertheless not governed by the will. Though we can join the head of a man to the body of a horse in the imagination, *it is not in our power* to believe such a creature exists. Equally, we can easily imagine the contrary of any matter of fact: but the sentiment of belief is lacking.[19] In asserting the non-volitional nature of belief, Hume declares that as it is not in our power to believe certain things, so we are not at liberty to believe them: in short, it is necessary that we disbelieve them. This is not quite to say that we proceed by probabilistic reasoning, because there is very little reasoning involved; rather it is a sentiment to which we are led by custom; as for Bacon it is the "principal magistrate," for Hume custom is "the great guide of human life."[20] While it is not forbidden by logic that two billiard balls colliding might "frolic about," on the table, or be transformed into a pair of mating pandas, it is forbidden to our reason, or more properly to our sentiment, to believe such a thing possible. It is possible to imagine it, but it is not possible in any particular instance to believe it will happen: belief, not being volitional, can be necessary (where we are not at liberty to believe or disbelieve something, owing, say, to its fantastical or apparent nature). The important point is that a principle of preference is furnished: I may conceive of the possibility that any action may lead to any outcome; but I may also conceive of the possibility that there are stable laws of nature. For Hume, custom, based on experience—which is the ground also of demonstrative reasoning—is the guide which furnishes such a principle.

It is by shifting from nature to our relation to nature that Hume, who was responsible for "the destruction of the principle of sufficient reason,"[21] salvages it in a modified and considerably weaker form. In lieu of the principle that for every fact or occurrence, there is a reason why it must be such and not otherwise, there must now be some reason for every belief concerning our relation to nature.[22] Without such a reason, the possibility of a belief is disqualified. From this, one readily perceives how Meillassoux traces contemporary fideism to skeptical and critical philosophical critiques in the modern tradition; for Hume, it would equally be grounds for the illegitimacy of fideism, precisely because he separates belief from will: a willed belief, unaccompanied by the genuine, non-volitional sentiment that usually attends belief, is an illusion or a self-deception. Of course, all kinds of problems arise at this point: questions of repression, self-deception, ideological projection and distortion, cognitive dissonance, the grounds of religious conviction, of trust, and Foucauldian themes such as "regimes of

truth" and "power-knowledge." Hume's position cannot account for a false belief as distinct from a true one, if the sentiment of belief is present; one cannot arrive at certainty, only conviction, and this leads to metaphysical fideism and political "decisionism," and ethical or pseudo-ethical stances that stress the formal commitment or "resoluteness" of one's attitude rather than the content of one's belief. Again, for Hume, however, reason tells us not that causal necessity is untrue, even if it is doubtable; custom and reason tell us to trust the evidence of our senses, and that our habitual understanding reflects stable laws of nature; custom (experience) and reason can lead us to certainty—as it does with demonstrative reasoning—and so, though the objects of demonstrative reasoning appear as absolute, while those of moral reasoning do not, our only guide in the matter is custom. It cannot tell us with certainty what can or cannot happen, but as regards belief, "sufficient reason" is required to produce the sentiment—to believe that a struck billiard ball will turn into a mare is impossible, and to profess the belief would be evidence of a derangement of reason. Likewise, the sentiment spontaneously and of necessity arises within us in other cases, as in our expectation that an "honest an opulent" acquaintance who enters our house will not steal from us, or the feeling of love toward benefactors and hatred toward those who harm us.[23] This is not certitude, nor is it logical necessity; but on the Humean view, it salvages the only kind of necessity in matters of fact available to the consistent empiricist.

Meillassoux is of course a good deal more radical. In place of the defunct principle of sufficient reason he proposes the "principle of unreason," or the "principle of factiality"[24]; this is the "speculative absolute" and it consists in the capacity-to-be-otherwise-without-reason.[25] It asserts, as Hume could not, the necessity of contingency, and it salvages the principle of non-contradiction (in the ontological rather than conceptual realm, that of entities rather than thought) with provocative formulae: from "the absolute necessity of everything's non-necessity,"[26] or from the restored absolute of "hyper-Chaos"[27]—which means that everything is capable of becoming other than it is—we learn that a contradictory entity is impossible, because it could not become other than it is. "Consequently, we know by the principle of unreason why non-contradiction is an absolute ontological truth: because it is necessary that what is be determined in such a way as to be *capable of becoming* and of being subsequently determined in *some other* way . . . the ontological meaning of the principle of non-contradiction, far from designating any sort of fixed essence, *is that of the necessity of contingency, or in other words, of the omnipotence of chaos*."[28]

Though we contended that there was a degree of imprecision in Meillassoux's treatment of Hume, this cannot be said to invalidate his rejection of Hume's "skeptical solution." Meillassoux's appeals to reason (for example his anhypothetical deduction of the absolute), then aim for a demonstrative power which outstrips a mere "sentiment" of belief. As

Badiou insists in his introduction, Meillassoux's argument provides a proof for his position.[29] One could not then be content to say that Meillassoux subscribes inadvertently to what we called the salvaged, weak form of the principle of sufficient reason in Hume, just in light of statements such as: "It seems to us that it would be wiser to believe in reason, and thereby to purge reality of the hinter-world of causal necessity,"[30] or " . . . .we have every reason to follow . . . what reason indicates."[31] These rather indicate his distance from Hume, because he insists it is a rational proof, and not a skeptical proof or a matter of persuasion by rhetoric. The Humean seems destined to give up his weak necessity that is accorded to non-volitional belief, and accept Meillassoux's necessity of contingency, or his "principle of unreason." And yet it is difficult to imagine the abstract and speculative arguments of the book appealing to the determinedly practically-minded Hume. Perhaps taste should not dictate to reason, but it invariably does: *de gustibus non est disputandum*. It is true, however, that one can imagine Hume rejecting Meillassoux's position out of more than inclination.

How would Hume answer Meillassoux's assertion of a determinable necessity? A possible Humean response may be elaborated in three stages. We first address an apparent paradox in Meillassoux's disqualification of all necessity except that of contingency. In this light, "contingency" is a property of entities or beings, and cannot be considered an entity itself. The phenomenon of contingency (contingency as it appears to us) is not the same as other phenomena, those things which "come to light" as *entities*. The possibility of considering contingency an entity is disqualified by the assertion of its necessity. The absolute is "a being whose *severance* (the original meaning of *absolutus*) and whose separateness from thought is such that it presents itself to us as non-relative to us, and hence as capable of existing whether we exist or not."[32] The speculative absolute must uncover an absolute (independent of human existence) necessity without any form of absolutely necessary entity—an "absolute without an absolute entity";[33] were contingency conceivably an entity, then, it would violate this requirement. Meillassoux admits the "apparently paradoxical" nature of this formula. But let us pursue it further. *What* beings are may be a contingent matter (the form they take, or the laws to which they conform or appear to conform), but for Meillassoux, *that* they are is not. This follows from the "strong interpretation" of the principle of factiality, for which Meillassoux argues and which is intended to answer the question: "Why is there something rather than nothing?"[34] Where the weak interpretation merely asserts that *if* something exists, then it must be contingent, which in no way entails that something exists, the strong interpretation asserts: "to say that contingency is necessary, is to say *both* that things must be contingent, *and* that there must be contingent things."[35] The solution is expressed in the formula: "*it is necessary that there be something rather than nothing because it is necessarily contingent that there is something rather than something else*. The

necessity of the contingency of the entity imposes the necessary existence of the entity."[36]

Thus, there *is* something—either a singular something or a plurality of things; and this is necessary. And yet this something or these things cannot be considered absolute; the only absolute necessity remains contingency.[37] And yet, if we establish that there must of necessity be an existing something, is this something, regardless of the form it takes, not governed by an absolute necessity? In other words, is the existing something not to be considered an entity? Every being (regardless of what it is) seems to derive its existence from the imposed necessity that there be something—every being, therefore, would appear to be in some sense necessary. Now here is the crux of the problem: if contingency means that any being can become anything else, can become wholly other without reason (this is the principle of unreason/factiality), then reason or logic supplies no warrant to rule out the possibility that any particular entity might, in becoming other than it is, become necessary—i.e., in its capacity-to-become-wholly-other, it might pass from contingency to necessity. It might, for no reason, at any moment become a necessary being. This is what Meillassoux rules out: he denies what he calls "real necessity" to any entity—that is, "[the] ontological register of necessity which states that such and such an entity (or determinate *res*) necessarily exists."[38] Real necessity, then, is denied to entities due to the absolute necessity of contingency—whatever entities may exist, they are not determinate. No necessity governed their being what they are, and nothing prevents them from becoming wholly other—except the becoming-other that would involve their becoming necessary. Meillassoux refers to this restriction as an auto-restriction by the absolute of itself. Meillassoux's speculative absolute, hyper-Chaos[39] carries with it a "principle of an *auto-limitation* or *auto-normalization of the omnipotence of chaos*."[40] The propositions which "harbor" this principle state:

> . . . we know two things that the sceptic did not: first, that contingency is necessary, and hence eternal; second, that contingency alone is necessary. But from this absolute necessity of contingency alone we can infer an impossibility that is every bit as absolute – for there is in fact something that this primary atom of knowledge ensures us is absolutely impossible, *even* for all powerful chaos, and this something, which chaos will never be able to produce, *is a necessary entity*. Everything is possible, anything can happen – except something that is necessary, because it is the contingency of the entity that is necessary, not the entity. Here we have a decisive difference between the principle of unreason and correlational facticity, for we now know that a metaphysical statement can *never* be true. We could certainly envisage the emergence of an

> entity which, *as a matter of fact*, would be indiscernible from a necessary entity, viz., an everlasting entity, which would go on existing, just like a necessary entity. Yet this entity would not be necessary, and [we could only say that] as a matter of fact, and up until now, it has never ceased to be.[41]

A rational discourse about unreason, therefore, is a discourse "that aims to establish the constraints to which the entity must submit in order to exercise its capacity-not-to-be and its capacity-to-be-other.[42] The question that arises is this: what of chaos, omnipotent chaos itself? Is it not itself to be considered an entity, and a necessary one—even if whatever entities it produces are contingent, and perhaps non-totalizable? The "entities" potentially described by mathematical statements might include "a law, a world or an object."[43] Elsewhere the rejected "real necessity" is called an "entity," where Meillassoux reiterates its rejection by the invocation of Ockham's razor.[44] If these are entities, possible subjects of mathematical description, it seems there is nothing to disqualify chaos itself, omnipotent chaos (its auto-limitation concerns what it produces, and chaos does not "produce" itself) from consideration as an entity. Chaos if so considered (indeed, as a "world"?) would, of course, constitute an absolute entity. That is the paradox: contingency demands no necessary entity, but there appear no grounds for rejecting chaos, as a potential subject of mathematical statements, as an entity.

But let us grant the speculative realist an equation of chaos with contingency, or the idea that chaos is nothing more or less than the absolute necessity of contingency, and disqualify it from consideration as an entity. The querying of entities, what can and cannot be catalogued as such, leads us then to the question: What is a law? The modern philosophical project is often said to begin with Francis Bacon, who explicitly broke with the ancients both in terms of goal and methodology, and whose influence helped to lay the foundations for modern science (certainly that other great innovator, Kant, seemed to subscribe to this view). It was indeed as such an innovator that Kennington evaluated Bacon's work.[45] In precisely what way or in what terms, then, did Bacon himself conceive of a law of nature? Addressing this question in a letter, Kennington wrote:

> Contemporary philosophy/history of science always begins with the fact of some scientific achievement, always with what Copernicus [or Kepler], Galileo, or Newton offered in the way of a new theory or law . . . [such] entrenched opinions that (a) modern science begins with the Copernican 'revolution'; (b) Kepler was the first to discover a law of nature in the modern sense, for example, a mathematically formulated description of a 'natural regularity'; and (c) Galileo was the first to discover a law

> of nature in the modern sense, since he proved mathematically the mathematical law governing the uniform acceleration of all bodies in free fall, whereas Kepler's law, while mathematical in form, is not proved mathematically ('deductively'), and is of restricted scope . . . In principle, however, there is no necessity for saying that it was impossible for Bacon to conceive the general notion of 'law' without ever having himself discovered a single law.[46]

An example of Bacon's idea of a law is the law of heat, which cuts across phenomena or natural kinds which exhibit heat. In an essay on Locke, Kennington described Bacon's view: "Bacon observed that there are significant phenomena that cut across the kinds; they are kind-neutral, so to speak. For example, heat, light, and gravitation. Heat isn't differentiated according to kind; the heat of a man, a rabbit, and a star is exactly the same phenomenon, and we must seek for the one underlying law of heat, which is the same everywhere in the universe, a law of which Aristotelians had never dreamed."[47] Bacon, of course, had he access to later scientific developments, would have conceded that the "law of heat" is not a law; laws for Bacon pertain to the *minima* of existing things, and so the so-called "law of heat" would have been superseded by the demonstration that the phenomenon of heat can be explained by the laws of motion, just as electricity and magnetism were unified in Maxwell's equations.[48] In principle, however, as Kennington maintains, there is nothing to suggest Bacon was incapable, in light of the state of contemporary scientific learning, of conceiving of a law of nature such as those proposed by Kepler or Galileo. Now, for brevity's sake, we cannot repeat here the ten listed, and related, characteristics of a law of nature which Kennington identifies in Bacon—though we would certainly not discourage any reader from consultation of Kennington's essay; we must then extract, hoping that we elide nothing essential to the analysis, a selection of the remarks most pertinent to the present essay. To begin:

> All laws are necessary, in the sense that they describe either (a) necessary processes of *minima* or (b) necessary relations between *minima* and qualities or (c) both. Probably Bacon wavers between (a), (b), and (c). But (c) is probably what he hoped to find, as is evident from *New Organon* 2.4. if the form, that is to say, the law, is present, the simple [nature] infallibly grows; if the form or law is absent, the nature 'infallibly' is absent. Here Bacon gives us at least one clear identification (in c) of what 'necessity' of a modern law of nature could mean . . .[49]

Further: "Law unifies *horizontally* the diverse manifestations thereof in different natural kinds by tracing to a single, common principle the same quality that is evident in them. *New Organon* 2.3: "whosoever is acquainted with forms embraces the unity of nature in substances [*in materiis*] the most unlike.""[50] He continues:

> Since each law is necessary, and all are laws of *minima*, that is to say, matter without the 'formal' organization of wholes, every law stands in a relation of necessity to every other in principle, though this relation may not now or ever be known; or nature is a system of laws. Bacon states the necessary relation in the *locus classicus* in [*New Organon*] 2.4 on 'form' or law, where we take 'deducibility' to mean 'stand in a necessary relation to . . . ' And the notion of 'system of laws' is contained in his notion of a *summa lex* or *magna forma* . . . if we construe the *summa lex* or supreme law to be the unified system itself.[51]

This horizontal unification is independent of any "vertical" unification, i.e., an individual law may be discovered and held demonstrably true without our knowing the full system of laws or how they related to one another: "A law therefore can be known as a law without a vertical unification of the whole of nature, which would result in the derivation (a) of each law from the *summa lex* and (b) in turn, of the *summa lex* from some original properties, or motions, of the ultimate material particles of all things . . . " Kennington adds: "If the derivation of the *summa lex* from the ultimate particles were available, then in that case at least, and only in that case in fact, some beings in the universe would have laws that pertain to them as such—*in propria persona*, as it were. Hence—since such ultimate particles are simples—no natural compounds (or "concrete" or "mixed" bodies) have laws that pertain to them as such."[52]

We see that inherent in the Baconian concept of law is a law's necessity. A contingent law of nature would then be a contradiction in terms. On this view, in a person's asserting that the laws of nature are not or at least cannot be confirmed as necessary, he would be saying: it is possible that what we perceive as laws of nature *are not actually laws*. We must of course separate concept from perception here: if our *concept* of a law (of nature) involves its necessity, then the possibility of its changing or its not holding in the future (hence revealing itself to future perception to be false) may be considered to reveal not that a law or all laws of nature are contingent, but that such-and-such a law or laws we had formulated were not in fact laws of nature. The objection to Meillassoux (less so to Hume, as he does not assert contingency, only the non-verifiability of necessity, and asserts our continued belief in necessity as a result of custom) that this implies is neither sophistry nor even reducible to semantic quibbles. Is it possible, indeed, to regard a law of nature which is contingent as a law, or is necessity here essential to the very

concept of law? This is the second stage of our conjectured Humean response.

Meillassoux's position involves the conviction that "*whatever is mathematically conceivable is absolutely possible*," and that "what is mathematizable cannot be reduced to a correlate of thought."[53] The mathematizable—not only pure but also applied mathematics, or mathematics applied to the totality of laws and phenomena we traditionally call "nature"—is thus absolute, and whatever is mathematically conceivable becomes "absolutely possible." Now, *to be possible*, if it has any meaning, can only mean "to be possibly true"; and to be absolutely possible is to be possibly, and absolutely, true. The "absolute" nature of mathematical statements (e.g., those about laws), which allows for the non-correlational truth of what Meillassoux labels "dia-chronic" statements, or of "ancestral statements," is expressed by Meillassoux in the proposition that: "the truth or falsity of a physical law is not established with regard to our own existence – whether we exist or do not exist has no bearing upon its truth."[54] We should recognize the oddity of this formulation (another example, perhaps, of imprecision in Meillassoux's language, as we saw in regard to Hume and the *a priori*): the notion of the falsity of a physical law is superfluous. There cannot be a false physical law; a law can only be true, or it is not a law. The notion of a false law could make sense only where there was a false or inadequate formulation of a law by human beings—which, say, had become enshrined in the canon of scientific knowledge but which was subsequently revised in light of scientific developments—which example would of course contradict the idea of a physical law's absoluteness. It is from here we may begin to indicate two shortcomings of Meillassoux's position in relation to those it claims to overcome or surpass: first, far from answering or refuting Hume, it remains itself (straightforwardly) open to a Humean brand of skepticism; and second, its attempted refutation of the skeptical hypothesis, and overcoming of correlationism, involves what we might call the "Kantian moment" in Meillassoux's thought.

To be possible, as we mentioned, means to be possibly true; but can to attain truth, in reference to a physical law or a law of nature, mean anything other than "to be necessary"? Certainly, as we said, no such notion as a *false* physical law can have content, without the notion compromising Meillassoux's assertion of the physical law's absoluteness. If we held to such a notion of law, denying necessity to laws of nature, there would be nothing to essentially separate human laws that are a product of legislative acts or the nomothetic function from laws of nature: both would be equally contingent, and any necessity would be merely empirical. With Meillassoux one cannot, of course, model the laws of nature after the model of laws of nomothetic origin, as these latter are anything but absolute; yet it seems difficult to definitely separate or distinguish the former while still denying

them real necessity. The dia-chronic or ancestral statement—that which concerns the state of the natural world without human witness—expresses the essence of modern science: examples of such statements are those concerning stellar emission or the decay of radioactive material. The only meaning these statements can have, for Meillassoux, is their literal meaning. As he puts it: "*an ancestral statement only has sense if its literal sense is also its ultimate sense* . . . This is what we shall express in terms of the ancestral statement's *irremediable* realism: either this statement has a realist sense, and *only* a realist sense, or it has no sense at all."[55] Or in terms of his examples: "both this [radioactive] decay and this [stellar] emission are conceived in such a way that they would have been identical to what we think about them even if human thought had never existed to think them."[56] This formulation again may give us pause: does not its outward form express or present exactly the kind of necessity ordinarily asserted about nature?—that, had we not been here, the course of nature would have been exactly the same; or that mathematical statements describing phenomena which occurred before (or are projected to occur after) the existence of human beings express objective, realist, non-correlational truths? The assertion of the omnipotence of chaos or the necessity of contingency would seem to contradict this formulation: how can one assert that any phenomena, including those of stellar emission or radioactive decay, *would have been identical* to how they are measured, without reintroducing a form of necessity? With chaos in mind, we would have to say: it would have been identical, had it followed the course it did, but it could have followed a very different course (as Meillassoux recognizes when he writes that science thinks a time in which life, and therewith "givenness," might never have emerged).[57] Perhaps we are only harping on imprecision of statements once more; but in the form of statements reside the nuances on which arguments turn.

In the course of the discussion of the ancestral statement and its absolute or non-correlational nature, the earlier notion of the truth or falsity of a physical law gives way to that of the meaningful statement, or the ability to meaningfully formulate laws. There is a shift of focus to meaning, or meaningfulness, rather than truth—understandable, of course, given that Meillassoux freely admits any particular dia-chronic statement may be subject to correction or revision. That emission or decay would have been identical "is in any case a feasible hypothesis which science renders meaningful, and which expresses the latter's general capacity to be able to formulate laws irrespective of the question of the *existence* of a knowing subject."[58] This is linked to the earlier recorded assertion that whatever is mathematically conceivable is absolutely possible. This "absoluteness," says Meillassoux, expresses the idea that "it is meaningful to think (even if only in a hypothetical register) that all those aspects of the *given* that are mathematically describable can continue to exist regardless of whether or

not we are there to convert the latter into something that is given-to or manifested-for."[59] In sum:

> . . . the meaning of the dia-chronic statement about radioactive decay older than all terrestrial life is only conceivable if it is construed as absolutely indifferent to the thought that envisages it. Accordingly, the absoluteness of that which is mathematizable means: the possibility of factial existence outside thought – and not: the necessity of existence outside thought. Whatever is mathematizable can be posited hypothetically as an ontologically perishable fact existing independently of us . . . what is mathematizable cannot be reduced to a correlation of thought.[60]

The problem here is that, contra Meillassoux, recourse to the mathematizable does not banish the skeptical challenge. At the level of simple mathematics, taken as a paradigm of rule-following behavior, this was of course the essence of the "skeptical paradox" famously elaborated by "Kripke's Wittgenstein." The matter is far too well-worn for us to rehearse in any detail, but its thesis in brief is the following: say I perform the equation 68 + 57, obtaining the answer "125." A skeptic, however, claims that in the past the symbol "+" and the word "plus" in fact designated a function called "quus," a function defined by: x quus y = x + y, if x, y, < 57; otherwise, "x quus y" = 5.[61] The skeptical challenge can be generalized for any function or equation. It represents, for Kripke, a skeptical challenge as grave as was Hume's—indeed he suggests the skeptical paradox he claims Wittgenstein to outline represents "the most radical and original skeptical problem that philosophy has seen to date."[62] Kripke follows the Humean model in suggesting that Wittgenstein can furnish only a skeptical solution, essentially a view of rule-following that makes it an intersubjective activity, subject to validation or correction by a community of participants in a "language-game," and a view of meaning that makes it fundamentally community-dependent.[63] This restores, of course, an element of human decision to mathematical functions, because the rules governing their application can be formulated in more ways than one—indeed, in utterly absurd but nevertheless meaningful ways.

There is no reason why advanced mathematical calculation, which is itself a system of far more complex rules, should not be subject to the same skeptical challenge. Thus, "what is mathematizable" is no criterion for defining the absolute: there is no reason why one could not mathematize even the most outrageous skeptical hypothesis and thereby render it meaningful (and it is the mathematizable nature of ancestral statements which allows Meillassoux to claim them to describe a reality not simply ancient but wholly anterior to givenness). From this perspective, the speculative position advanced by Meillassoux remains powerless, despite

the stress laid upon and central place in it of the dia-chronic statement, to refute a position such as Gosse's hypothesis. There is nothing to prevent one mathematizing Gosse's "omphalos" hypothesis, rendering meaningful the idea that the world was created by God along with fossil records and all other evidence of "ancestral" events, such as stellar emissions and radioactive decay.[64] To mathematically render this hypothesis does not of course render it persuasive, but it renders it meaningful: this is more especially the case where omnipotent chaos has been accepted as a fact.[65] At such a point, one must weigh one interpretation against the other; the assertion of contingency may survive such a move, but that of absoluteness cannot.[66]

The mathematization of nature ensures, for Meillassoux, the incorporation of ancestral statements into the realm of knowledge. Thus the dia-chronic statement expresses the essence of empirical science. What this expression does not do is disqualify the idea of another, non-human correlation.

> Such statements certainly do not claim that there could be no relation to the world other than the human relation to the world – we cannot prove that dia-chronic events could not have been the correlates of a non-human relation to the occurrence (i.e. we cannot prove that they were not witnessed by a god or by a living creature). But science's dia-chronic statements assume that the 'question of the witness' has become irrelevant to knowledge of the event.[67]

We have been presented here with the question of *knowledge* of the event; or, we have found our way back from the question of meaningfulness to that of truth (it is just subsequent to this passage that the shift in Meillassoux's discussion occurs).[68] In terms of the skeptical challenge we have been discussing, then, this passage strikes us as an evasion. That a dia-chronic event may have been witnessed by a non-human entity or intelligence may not affect our knowledge of it; but if it was *caused* by a non-human intelligence—Gosse's God, for example—or if a non-human intelligence arranged things such that it appears to us that such an event had occurred, when in fact it had not, this certainly affects what counts as our *knowledge* of it. If Gosse's hypothesis or Russell's extension were true, not only could we not disprove it, but we could not rule out the possibility of science's discovering its truth at a future date; thus, what now counted as scientific knowledge would be subject to such radical revision as not to count as knowledge at all, or at least to be rendered inadequate and even illusory. This is because this would not only affect the questions on which science has always run and still avowedly runs aground, those of final causes, of *telē*; it would pertain not only to the *why*, but to the *how*. As mentioned, Bacon, Descartes and Newton all asserted the scientific-

experimental primacy of method, avoiding metaphysical or philosophical questions, and this remains the required procedure in contemporary science.[69] The issue of Gosse's or similar hypotheses, however, addresses not only the origin and destiny (or purpose, if any) of the universe, but its order and its organization. This problem, this skeptical challenge, seems to us conjured away only by the typical Humean skeptical solution: the question of which of any two explanations is more believable, whether indeed it is possible for a sane man to believe in an unlikely tale supported by some madcap mathematics, and how trust and custom remain the great guides of human life. Of course, this ties what counts as knowledge to human presence and judgment, and discounts the absoluteness of the ancestral statement. To express a preference reintroduces the human element; one cannot even invoke Ockham's razor, or recur to Laplace's famous "*Sire, je n'ai pas eu besoin de cette hypothèse*" without compromising the absoluteness of the scientific statement, ancestral or otherwise.[70] Again, merely accepting or asserting the irremediable realism of these "ancestral" statements cannot refute Gosse's hypothesis—Meillassoux's position is still vulnerable to a Humean skepticism. With regard to ancestral statements, a variety of interpretations are still mathematically conceivable (and so absolutely possible), based on the skeptical challenge to the concept or phenomenon of rule-following. This holds, it seems, unless we accept the notion of an order in nature which is not only stable but necessary, and the successful formulation or interpretation or decipherment of which furnishes absolute scientific knowledge. It seems to us, then, that Meillassoux's concentration on Kantian correlationism as the *bête noir* of speculative materialism has occluded the radicality of Hume's original challenge, to which Kant responded.

We finally reach the third stage of the Humean objection. Russell's extension or radicalization of Gosse's hypothesis reminds one of Hume's assertion that the "self" was nothing more than a "bundle of perceptions."[71] Indeed, Russell had in mind at the time of speaking (about the phenomenon of memory) Hume's principle from the Enquiry that ideas were copies or approximations of impressions. The skeptical position must of course query the stability or necessity of the interior self, as well as that of the observable regularities in the external world. Meillassoux admits that a fully worked-out theory which accepts contingency or the omnipotence of chaos—or a speculative resolution of Hume's problem—should ideally account for or provide precise conditions for the observed stability of physical laws.[72] Hume shifted the question to accounting for our belief in that stability—indeed, in the laws' necessity, or in the existence of a necessary connection between events. This skeptical solution, in which consists what we called Hume's correlationism, is rejected by Meillassoux. He goes considerably further than Hume, as we have seen, in asserting contingency, intuited a priori by reason, where Hume (and like him Bacon and Descartes) had restricted himself to asserting non-provable necessity (and that, as we have

argued, not strictly deduced a priori). Meillassoux's position may be restated here as he presented it in a more recent work, which shows the boldness and explicitness with which it is both held and expressed:

> Now, our perspective is the inverse of Hume's: for we propose . . . to start out from the *effective possibility* that natural laws might break down without reason, in favour of an eventuality incompatible with them. For we pose the following question: since Hume has convinced us that we could *a priori* (that is to say without contradiction) conceive a chaotic modification of natural laws, why not have confidence in the power of thought, which invites us to posit the *contingency* of the laws of nature, rather than in experience, in which alone the presentation of the apparent fixity of observable constants finds its source? Why extrapolate the empirical fixity of laws into a belief in their necessity, rather than adhering to the intellection of a radical Chaos which Hume has masterfully, if implicitly, revealed to us? Why not, in other words, *absolutise* the failure of the Principle of Sufficient Reason, by maintaining that the meaning of that absence of reason for laws which we run up against in the Humean problem is not an incapacity of thought to discover such reasons, but a capacity of thought to intuit *a priori*, in the real itself, the effective absence of the reason of things as laws, and the possibility of their being modified at any moment?[73]

What is wrong here, it seems, is that Meillassoux has failed to grasp the full implications of his position: he has failed, in other words, to account for or to address that other aspect of the properly skeptical position, the querying of the internal consistency of the self or, what amounts to the same, of observing or deducing reason. The problem is twofold. On the one hand, if nature or the laws of nature can change at any moment, without warning and without reason, and reason cannot account for their apparent stability, then these laws can only ever be "as they appear to us," temporarily and in passing. To clarify: we cannot in fact assert their stability, because we cannot assert the truth of memory or past experiences. The other side of the problem is what Meillassoux has assumed: the passage above assumes, quite illegitimately, the stability of reason's rules or observations, a position which is inconsistent—incoherent, even—given that adopted vis-à-vis the laws of nature. Meillassoux implicitly and without comment exempts human reason from the contingent physical laws or the chaos which makes up the external world. Even if one hesitates, on good philosophical grounds, to accept a crude or hasty physicalist reduction of mental to biochemical events—which would deny the freedom of the will, and insert mankind firmly into the chain of natural causality—Meillassoux's move here is out of step with his

assertion of contingency. One might call this Meillassoux's "Kantian moment." His position essentially adopts two aspects of Kantian correlationism: it supposes a unity and potency of observing reason such that one can deduce using reason alone such things as the contingency of physical laws (for Kant this unity is the transcendental unity of apperception and the unity of nature derived from the categories); and it supposes, silently, a human subject (which for Kant would be the noumenal subject) effectively exempted from the chain of natural causality *or chaos*.[74] If human beings are subject to the physical laws of nature (and as Feynman is fond of reminding, physics explains, via quantum electrodynamics, all of chemistry, and so in turn all of biology), there is nothing to prevent a Gregor Samsa waking up one morning transformed into a giant crawling creature, or one's genetic makeup suddenly changing for no reason whatsoever. This, of course, may be admitted by Meillassoux; more damaging to his position is that it has imported a putative unity and continuity of observing reason without further ado, which it seems could be justified only through a Kantian argument that the unity of the self is based on the stability in nature, which is itself necessary because derived from the self. Certainly one element of Hume's challenge which Kant sought to meet was that it potentially undermined the human being's claim to intellectual and moral autonomy, to the degree that one was rendered incapable of authentic moral action.[75] All of this has been sidestepped in Meillassoux's passage, which implicitly assumes the legitimacy of *a priori* rational deductions. Opposing this is the final riposte of the skeptic: for how can one arrogate such power to reason, given the assertion of contingency? Again, on this point, the skeptic appears unanswered. We return then to Humean correlationism: the speculative solution to Hume's problem does not surpass the original skeptical solution. As we cautioned at the very outset (and as is acknowledged in the last, lengthy passage from Meillassoux cited above), the assertion of contingency, or that "anything might happen" is unwarranted in Meillassoux: the traditional skepticism which asserts the non-provability of necessity and the inaccessibility of final causes, and which was shared in one form or another by Bacon, Descartes, Hume and Newton, remains all that can be legitimately asserted.[76] Our positive knowledge does not advance beyond the skeptic's; and neither skepticism nor by extension correlationism stands refuted by the speculative turn.

[1] Hume, *Enquiry* §§ 24, 26–7, 44; cf. Nietzsche, *Der Wille Zur Macht* § 550. For Hume, the reason behind the world and its processes was obscure. For Descartes in the *Meditations*, the problem, which amounts to the same thing, was that the purposes of the creator remained definitively beyond our ken, and here the class of final causes ran aground (*Meditations* IV.6). Cf. F. Bacon, *New Organon* I.48, on the "unquiet" human understanding, which does not rest with what it rightly within its remit: " . . . this inability [of the understanding to stop] interferes more mischievously in the discovery of causes; for although the most general principles in nature ought to be held merely positive, as they are discovered, and cannot in truth be referred to a cause, nevertheless the human understanding being unable to rest still seeks something prior in the order of nature"; and cf. Hume, *Enquiry* §§ 6–8 on the need for speculation to restrict itself to "the proper province of human reason." Compare further Richard Kennington's comments on the attitude of Descartes which reveals itself in the course of the *Discourse on Method*: "But can the truth about the first principles of all things, of the whole, be essentially simple? There is another possibility, namely, that the truth which the philosophers sought, the truth of ultimate principles, is either unavailable or is unnecessary or both. The first principles may be replaced by methodology . . . The phrase "laws of nature" seems to imply a divine lawgiver but none is in fact necessary . . . The simulation of the divine lawgiver serves to dissimulate the absence of any metaphysical first principles. The laws of nature are known as laws because they satisfy the requirements of method, not because they can be traced to or lead to some metaphysical principle. In short, methodology and metaphysics are mutually exclusive . . . This is the modern concept of nature. Descartes does not know the ultimate parts. Newton insisted, "I don't know the ultimate parts; I don't need to for the sake of my three fundamental laws of motion." No one today knows the ultimate parts either." R. Kennington, "Descartes's *Discourse on Method*" in *On Modern Origins: Essays on Early Modern Philosophy,* eds. P. Kraus and F. Hunt (New York: Lexington Books), 110, 120. We may note that Descartes's assertion that the will of God is beyond temporal, human understanding, which disqualifies in advance the search for final causes, can well be regarded not as a measure of his piety, but of his prudence. It invokes a religious reason for the abandonment of metaphysics (which, we may recall, Aristotle made synonymous not only with "first philosophy" but also with "theology") in favor of method, or for the abandonment of the search for first principles in the sciences: the goals of reason are thus instrumental and

methodical, rather than contemplative. In a letter to his old mentor Marin Mersenne, Descartes had indeed informed him, while asking him not to relay the fact, that: "these six *Meditations* contain the whole foundation of my physics"; he hoped his readers would perceive the truth of his principles "before perceiving that they destroy those of Aristotle." Quoted in Kennington, "The "Teaching of Nature" in Descartes's Soul Doctrine," 164.

[2] Hume calls this portion of his argument the "positive solution." Though he intends the word, of course, as merely subsequent and superior to his "negative" answer, it is also one which yields a conception of the principles of nature which is "positive" in Bacon's sense in the note above—that is, which concedes the unavailability of first principles or final causes.

[3] Quentin Meillassoux, *After Finitude: An Essay on the Necessity of Contingency*, trans. R. Brassier (Continuum, 2011), 88. Hume, *Enquiry* §§ 36, 39–41 cf. §§ 59–61.

[4] Kant, *Critique of Pure Reason,* B163.

[5] Meillassoux, *After Finitude*, 90.

[6] Meillassoux, *After Finitude*, 91.

[7] Meillassoux, *After Finitude*, 30–32. Rejection of the ontological argument could alternatively be based on the rejection of the principle that existence is superior to inexistence (Solon, or Silenus, answers Scholasticism). Otherwise a being which encompassed within itself every possible perfection would imply as part of its perfection its existence. From the formula of Anselm, God as the being "greater than which cannot be thought," one would contend: to maintain that a being which is the sum of all perfections may exist or not exist is a contradiction. If we conceive of two of such beings, one existing and one not existing, or one whose existence is necessary while the other's is unnecessary, the former is a more perfect being. This would be invalid if existence were not a perfection, or not inherently superior to inexistence.

[8] Meillassoux, *After Finitude*, 91.

[9] Kant, *Critique of Pure Reason* B xii–xiii (note the reference to Bacon); Descartes, *Meditations* II.9–10, III.4; the implied critique of Cartesianism in Vico's *New Science*, which makes mathematics and geometry human inventions, and which reproves philosophical investigation of nature, known only to God (or the search for final causes), seems to miss the partial Cartesian commitment to both positions. *New Science* I.iii.331–2; I.iv.342, 349. Vico sees his view as remaining in accord with the Baconian method of philosophizing, I.iv.359. Compare too Hegel's differentiation of the ancient from the modern approach in asserting that the ancients began with

beings or experience, and derived concepts from observation, where the moderns begin with the concept. *The Phenomenology of Spirit*, Preface, § 33; cf. J. Klein, *Greek Mathematical Thought and the Origin of Algebra*, trans. E. Brann (New York: Dover, 1992), 120–21.

[10] Meillassoux, *After Finitude*, 87.

[11] Meillassoux, *After Finitude*, 95.

[12] Meillassoux, *After Finitude*, 97.

[13] E.g. Hume, *Enquiry*, §§ 13–18, 49–50.

[14] Meillassoux, *After Finitude*, 90 –91.

[15] Note Hume's assertion in § 30 that he can conceive of fabulous things—a falling body which looks like snow but is hot and tastes salty—"clearly and distinctly." The echo of the Cartesian criterion of truth in the *Meditations*—that one's perceptions be known "*claire et distincte*"—seems obvious, and intended to distinguish his position from that of Descartes.

[16] Meillassoux, *After Finitude*, 95–99.

[17] Meillassoux, *After Finitude*, 100.

[18] Cf. ibid., 119 on Kant's correlationism: " . . . it construes those elements that seem to be indifferent to our relation to the world in terms of that relation itself."

[19] Hume, *Enquiry,* § 39.

[20] Hume, *Enquiry,* § 35. Bacon, *Essays*, 39, "Of Custom and Education": "Many examples may be put of the force of custom, both upon mind and body. Therefore, since custom is the principal magistrate of man's life, let men by all means endeavour, to obtain good customs."

[21] Meillassoux, *After Finitude*, 124, cf. 88.

[22] Taking up the language of the later distinction made by Sellars, we might say that the principle operates in the "space of reasons," if not in the "space of causes."

[23] Hume, *Enquiry,* §§ 70, 38.

[24] Meillassoux in fact seems to use "factiality" (*factualité*) once (*AF*, 73) before it is properly introduced as a term and defined (ibid., 79). It is rendered "factuality," but the context, which implies synonymy with the principle of unreason, seems to require "factiality."

[25] Meillassoux, *After Finitude*, 56; cf. 60.

[26] Meillassoux, *After Finitude*, 62.

[27] Meillassoux, *After Finitude*, 64.

[28] Meillassoux, *After Finitude*, 71.

[29] Meillassoux, *After Finitude*, vii.

[30] Meillassoux, *After Finitude*, 91.
[31] Meillassoux, *After Finitude*, 107.
[32] Meillassoux, *After Finitude*, 28.
[33] Meillassoux, *After Finitude*, 34.
[34] Meillassoux, *After Finitude*, 71.
[35] Meillassoux, *After Finitude*, 73.
[36] Meillassoux, *After Finitude*, 76.
[37] Meillassoux, *After Finitude*, 80.
[38] Meillassoux, *After Finitude*, 32.
[39] Meillassoux, *After Finitude*, 64.
[40] Meillassoux, *After Finitude*, 66.
[41] Meillassoux, *After Finitude*, 65–66.
[42] Meillassoux, *After Finitude*, 66.
[43] Meillassoux, *After Finitude*, 127.
[44] Meillassoux, *After Finitude*, 107.
[45] It is popular to trace this break not to Bacon but to the innovations of Machiavelli; thinkers such as Isaiah Berlin and Leo Strauss agree on this point, though they characterize the break differently. As regards the latter, Kennington—who rented a room in Strauss's apartment in Chicago—certainly felt no influence as strongly as that of Strauss in the formation of his philosophical outlook, and he acknowledges Bacon's awareness of the potentialities opened up by Machiavelli's work in his essay "Bacon's Humanitarian Revision of Machiavelli," in *On Modern Origins*, 57–77. In terms of a strictly (one might even say more narrowly) *philosophical* break with the ancients, however, rather than a general one, and one that is theoretical and metaphysical in a way Machiavelli's political philosophy is not, Bacon may be said to stand at the fount of the modern philosophical or scientific tradition.
[46] Kennington, "Appendix: Laws of Nature," 52. This is a tradition which Meillassoux follows, even if he cautions that the "Galileism" he places at the beginning of modern science is a shorthand for "the mathematization of nature," rather than a reference to the systematic ideas of Galileo, as these "continued to be suffused with Platonism and did not by themselves represent a complete break with the conception of the cosmos held by the Ancients" (*After Finitude*, 136 *n.* 1). His source or authority for such a claim is in part the work of Alexandre Koyré. It resembles Koyré's claim that Kepler remained in crucial respects "bound by tradition" such that he could still be considered an Aristotelian. Koyré, *From the*

Closed World to the Infinite Universe (Baltimore: Johns Hopkins Press, 1957), 72, 87. This is however something Kennington would contest. Imagining Aristotle confronted with the "entrenched opinions" mentioned, he contends: "Aristotle would have dismissed such opinions, since [Copernican astronomy] is not a physics or is only concerned with celestial phenomena; and neither Kepler nor Galileo seeks to offer either a complete physics, or a method that would lead to a complete physics, or attempted to offer (as Bacon did) that reflection on the central notion of "law" which is at least a complete approach to a complete physics."

[47] Kennington, "Nature and Natural Right in Locke," in *On Modern Origins*, 257. Kennington often recurs to this example in his writings on Bacon. See *On Modern Origins*, 25–6, 28, 37, 42, 45, 53–4

[48] This principle creates its own difficulties, of course, pertaining to levels of description and whether one can be "deeper" and hence more fundamental than another, even where the other retains restricted validity. The theory of quantum electrodynamics as formulated by Feynman, Schwinger and others in the twentieth century, for example, does not entirely invalidate, even if it supersedes, say, Maxwell's equations, which remain adequate and applicable in certain contexts and therefore, within those contexts, true. Furthermore, the so-called "correspondence principle" in physics reminds us that the new physics of the twentieth century did not simply displace or make redundant, by invalidation, the entirety of the classical model. How these matters might affect our conception of a law of nature is a question outside of our present concerns. We may note further that Meillassoux names heat, along with flavor and smell, among examples of a body's sensible qualities (*After Finitude*, 115; cf. 11–12).

[49] Kennington, "Appendix: Laws of Nature," 53.

[50] Kennington, "Appendix: Laws of Nature," 54.

[51] Ibid.

[52] Kennington, "Appendix: Laws of Nature," 54–5. These assertions of necessity are complicated by what we might call Bacon's skepticism, which is of precisely the same kind as that of Hume and Descartes, regarding final causes: " . . . we recall that when Bacon said that the laws of nature are eternal and immutable, he added, "in the eye of reason, at least" (*New Organon* 2.9). What restrains Bacon from saying that the laws of nature are unchangeable simply is just his sober appreciation of the requirements of theoretical knowledge. Truly to know a law is to know its relation to other and more fundamental laws, or to the whole. Again, he has recorded his view that the true particles are changeable. It is unlikely that if the

true particles are changeable, the laws that regulate or describe their behavior are unchangeable. Of course the processes of change might have the structure of a repetition; Bacon suggests in one place that there is an eternal return of the stages of matter, and that it might be knowable by experimentation." Kennington, "Bacon's Ontology," in *On Modern Origins*, 47. What is curious about Bacon's addition here quoted is that for Meillassoux, as for Hume before him, it is precisely to the "eye of reason" that the laws of nature are *not* (demonstrably) eternal and immutable. For Meillassoux, in fact, reason should dictate that we not only deny that we have access to necessity, but that we deny necessity—or that we have, via the operation of reason, access to the fact and reality of contingency.

[53] Meillassoux, *After Finitude*, 117.

[54] Meillassoux, *After Finitude*, 114.

[55] Meillassoux, *After Finitude*, 17.

[56] Meillassoux, *After Finitude*, 116–17.

[57] Meillassoux, *After Finitude*, 22.

[58] Meillassoux, *After Finitude*, 117.

[59] Ibid.

[60] Ibid.

[61] Saul Kripke, *Wittgenstein on Rules and Private Language* (Harvard University Press, 1982), 7–9. The controversies the book has engendered among analytic philosophers concerning not only its interpretation of Wittgenstein but also its treatment of rule-following need not prevent us marshalling its thesis as an objection to give pause the speculative materialist in his assertion of the mathematization of nature providing us with absolute statements.

[62] Kripke, *Wittgenstein on Rules and Private Language*, 60.

[63] E.g., Kripke, *Wittgenstein on Rules and Private Language*, 90–95.

[64] As is well known, Russell extended this skeptical argument to the unfalsifiable proposition that the world began five minutes ago, with not only external evidence of greater age, but the past memories of all existing people (or one existing person) created simultaneously. While the idea strikes us as absurd, the extension does not even possess the refutational or confutational power of a logical RAA. B. Russell, *The Analysis of Mind* (London: Allen & Unwin, 1921), 159–60.

[65] Meillassoux asserts that the correlationist must find herself "dangerously close to contemporary creationists" (*After Finitude*, 18). It is true, perhaps, that a Humean skeptic could not refute outright the creationist claim that the world is 6,000 years old. One suspects, however, that Humean skepticism, which in philosophical terms,

speaks softly and carries a big stick, would be as unperturbed by this as it is by the prospect that human knowledge would be without definite or demonstrable foundation. And of course, it would point out that the creationist's claim was subject to skeptical challenge even more than are scientific claims.

[66] As Meillassoux acknowledges, it did not require the advent of modern science for the concept of what he calls an ancestral statement to arise: countless myths and theogonies had expressed what had preceded or what would succeed mankind. What separates the modern scientific ancestral statement from these is its rootedness in the mathematization of nature, which meant that its assertions "were no longer of the order of myths, theogonies or fabulations, and instead became *hypotheses* susceptible to corroboration or refutation by actual experiments" (*AF*, 114). The idea that one can mathematically render a skeptical hypothesis—which would, in practical terms, no doubt stand refuted—reminds one of the persistence of the skeptical, fundamentally Humean, challenge. Meillassoux, for his part, does not definitively refute it—nor, importantly, can speculative materialism in fact refute the challenge of the creationist. Every scientific statement is conceivably "ancestral" as it takes account of a state of affairs resulting from and relating to the origin of the universe. As long as it cannot say *why* it is so, however, and not only *how*, it is susceptible on a theoretical level to the skeptical challenges of Hume, Russell or the creationist.

[67] Meillassoux, *After Finitude*, 116.

[68] This is the problem with discussing the meaningfulness of scientific statements, or addressing the conditions under which they could be meaningful (cf. *AF*, 3, 9, 10). Where Meillassoux asserts the realist meaning as the only meaning of these statements, the problem is not solved: these statements retain meaning even where they cannot be proved true.

[69] As it was put very simply by perhaps the greatest twentieth century physicist: "The next reason you might think you do not understand what I am telling you is, while I am describing to you *how* Nature works, you don't understand *why* Nature works that way. But you see, nobody understands that . . . So again, we are not going to deal with why Nature behaves in the peculiar way She does; there are no good theories to explain that." R. Feynman *QED: The Strange Theory of Light and Matter* (London: Penguin, 1990), 10, 12. Elsewhere: "The most shocking characteristic of the theory of quantum electrodynamics is the crazy framework of amplitudes, which you might think indicates problems of some sort! However, physicists have been fiddling around with amplitudes for more than fifty years now,

and we have gotten very used to it . . . So this framework of amplitudes has *no experimental doubt* about it: you can have all the philosophical worries you want as to what the amplitudes mean (if, indeed, they mean anything at all), but because physics is an experimental science and the framework agrees with experiment, it's good enough for us so far" (124).

[70] On Laplace, see Koyré, *From the Closed World to the Infinite Universe*, 276.

[71] Hume, *Treatise*, I.iv.6.

[72] Meillassoux, *After Finitude*, 101, 127; cf. 84–5.

[73] Quentin Meillassoux, "Spectral Dilemma" in *Collapse* IV, Ed. R. Mackay (Falmouth: Urbanomic, 2008), 273.

[74] Assertion of the "omnipotence of chaos" (itself a problematic phrase, because potency tends to imply agency—i.e., it should be separated from *potential*; potency is based on *actualized* potential, what *has* and not what will or may come to be in the entity) should prompt caution. Meillassoux's denial of necessity, and assertion of the omnipotence of chaos, ought to imply that there can only be logical, or even tautological, necessity. For example, one can assert: If a person believes *x*, that person believes *x*. But one can never, given the absoluteness or omnipotence of chaos, or the necessity of contingency, demonstrate that any person *P* at time *t* actually believes or believed *x*.

[75] We should recall that Kant's avowed motivation in the first Critique was in some way to salvage *a priori* knowledge from the skeptical challenge, and to provide a firmer foundation for human knowledge; to anyone who is not perturbed by the notion of knowledge without absolute foundation (and Gödel has perhaps taught us that logic dictates we not be so perturbed), the need for such a project as is undertaken by Kant is not self-evident. This is partly to say that the project had already a moral tincture from the outset. It is partly from this quite transparent fact, no doubt, that so many critics have historically concluded that the whole of the first Critique is only a prelude or preliminary to the second, and that Kant's chief purpose was from the beginning to provide an intellectual basis for belief in the freedom of the will and the reality of morality—or to prove that what was already assumed in everyday human interaction was legitimately assumed. As Nietzsche so memorably put it, Kant wished to prove to "the whole world," in a way that would utterly confound it, that "the whole world" was in the right (*Die Fröhliche Wissenschaft*, § 193).

[76] The asserted contingency of the laws of nature (and the necessity of that contingency) Meillassoux claims to derive from reason alone. In Hume, however,

such a derivation would be disqualified from that class of things—to which, for example, geometrical proofs and other objects of "demonstrative reasoning" belong—which are known "by the mere operation of reason." To know something in this way—or to truly know it *a priori*—would in the case of, e.g., an unfamiliar object, require us to discern its effects or its cause in its very being, immediately and without either experience of it or drawing analogy with prior experience. To actually *know*, by the mere operation of reason, that physical laws (which are themselves "entities") *were contingent*, would require reason to discern not merely *that* they are or may be so, but precisely *why* they are and must be so: without knowledge of final cause, the asserted contingency is impossible. Cf. Hume, *Enquiry* §§ 23–4, 35. A consciousness capable of such reasoning would perhaps "violate the essential finitude of the transcendental subject" (*AF*, 42) by virtue of its immediate access to reality via reason. The question of morality again raises its head in this respect. Descartes had contended that his will had a scope as great as God's, but that, not being omniscient or omnipotent, he lacked the power to always act on his will, or to always will the best for himself and avoid error. Had he these attributes, he says, he would always know immediately what was right and wrong, and would never be led either into error or sin (*Meditations* IV.8–9). Kant, in perhaps his most famous imagining of a consciousness with immediate access to things-in-themselves, evokes the idea to assert that this access would deprive us of the conditions for properly moral action, and in fact would render us "puppets" (*Critique of Practical Reason*, section IX, "On the Wise Adaptation of Man's Cognitive Faculties to his Practical Vocation").