Hume on Time and Steadfast Unchanging Objects

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For Hume time or duration is essentially related to change. More specifically, the idea of a particular duration just is the idea of a number of different objects occurring in succession. According to Hume, our idea of time "can plainly be nothing but different ideas, or impressions, or objects dispos'd in a certain manner, that is, succeeding one another" (T 1.2.3.10; SBN 37).[1] Hume maintains that we cannot derive the idea of time without a "*perceivable* succession of changeable objects" (T 1.2.3.7; SBN 35; Hume's italics). In making this claim, Hume means to rule out both the possibility of deriving the idea of time from no objects whatsoever as well as of deriving it from perceived, but unchanging objects. Thus, our idea of a particular duration is simply the idea of a succession of different objects. As Donald Baxter nicely summarizes the view, the idea of time is "the idea of any succession qua succession" (Baxter [2008], 19).

Of course, not every object is in a constant state of flux. One of the most distinctive—and puzzling—features of Hume's account of time is his insistence that because the idea of duration cannot be derived from unchanging objects, it cannot be correctly applied to them. As a result, an unchanging object cannot "be ever said to have duration" (T 1.2.3.11; SBN 37). For Hume, not only is it impossible for there to be time without succession, but strictly speaking no unchanging object can be said to endure. To believe otherwise, Hume maintains, is to believe a "falsehood" (T 1.2.3.11; SBN 37). Nevertheless, Hume recognizes that unchanging objects can coexist with temporal successions. Thus, if one stares at a blank wall while listening to a melody, the different auditory impressions, as members of a succession, constitute a time. By contrast, one's perception of the wall is unchanging. Therefore, although it coexists with a temporal succession, one's perception of the wall does not itself endure—it has no duration.

Hume calls invariant objects such as the perception of the wall "stedfast and unchangeable" (T 1.2.3.11; SBN 37).[2] Such objects are *steadfast* because they remain in existence even as the objects that compose the coexistent successions come into and go out of being. They are *unchanging* because unlike the successions with which they coexist, the steadfast unchanging object (SUO) undergoes neither internal variation nor change of place.[3] In sum, a steadfast object is a stationary, unchanging object that coexists with a temporal succession without itself having duration.

However, this account of steadfast objects is deeply puzzling. For if an SUO cannot properly be said to endure, how are we to understand its coexistence with temporal successions? Or to put the question another way, how can a durationless object coexist with each successive stage of an enduring entity? In this paper we explore Hume's theory of steadfast, unchanging objects and their relation to time. As a means of sharpening the issue, we consider in section 1 Hume's rejection of one common philosophical account of the relation between unchanging objects and time. In section 2, we examine the recent interpretation of Donald Baxter, who has offered what is arguably the most sophisticated interpretation of Hume's account of SUOs. Having raised on important worry for Baxter's reading, we turn in section 3 to Hume's discussion of the vacuum and the idea of "fictitious" distance as a possible model for understanding steadfast unchanging objects. Finally, in section 4 we set out Hume's skeptical solution to the question of how SUOs can be said to endure.

1. Time as the Measure of Rest

One important clue to understanding Hume's account of SUOs is provided by his own statement of the implications of his account of time. As we have just seen, Hume takes it to be a consequence of his account of time not only that there can be no time without succession, but that steadfast, unchanging objects have no temporal duration. Hume acknowledges that this latter assertion conflicts not only with our ordinary, untutored beliefs about time, but also with

the "common opinion of philosophers" (T 1.2.3.11; SBN 37). Just what Hume takes the received view of the philosophers to be is hinted at near the close of the section, where he observes, "by what fiction we apply the idea of time, even to what is unchangeable, and suppose, as is common, that duration is a measure of rest as well as of motion, we shall consider afterwards" (T 1.2.3.11; SBN 37). Given that Hume uses the terms "time" and "duration" interchangeably, we can understand him to be attributing to the philosophers what he takes to be the erroneous view that time is the measure of rest.

In formulating the common opinion of the philosophers as the view that time "is a measure of rest," Hume is alluding to a standard element of the Aristotelian account of time. Aristotle famously defines time as the "number of motion in respect of the before and after" (*Physics* IV, 220a 25–6). For the Scholastics, the phrase "number of motion" was generally understood to refer to measure, so that Aristotle's definition was commonly paraphrased as "time is the measure of motion."[4] Thus, for example, Aquinas affirms that "time is the proper measure of movement" [*tempus est propria mensura motus*]" (ST I q. 10, art. 4). As might be expected, there was a good deal of controversy within the tradition as to how exactly Aristotle's definition was to be understood. However, the core idea was taken to be that the existence of time depends on that of motion—or in other words that a necessary condition of there being time is that there be motion. Now, because motion was understood broadly to encompass not only change of place (local motion), but any continuous change, this minimal reading amounts to the view that change or succession is a necessary condition of time.

Furthermore, while Aristotle himself made clear that time, though dependent on motion, cannot be reduced to motion, some Scholastics disagreed and took this further step.[5] However, this naturally gave rise to the following question: if time is dependent upon, or a fortiori, reducible to motion, what are we to say of the temporality of objects at rest? Commonsensically, we take such objects to exist in time and to have real, measurable durations

despite their lack of change. One might for example say that the broom has been in the broom closet for the last three hours. To accommodate this intuition, the Aristotelians maintained that time is also the measure of rest, albeit only indirectly (*per accidens*). A typical statement of the view can be found in Aquinas, who argues that:

> time measures not only things that are actually changed, but also things changeable; hence it not only measures movement, but it also measures rest, which belongs to whatever is naturally moveable, but is not actually in motion (ST I q. 10, art. 4).

It is to this feature of the Scholastic account of time that Hume apparently alludes when he speaks of the "falsehood" that time or duration "is a measure of rest as well as of motion" (T 1.2.3.11; SBN 37). Let us explore in a little more detail the Scholastic theory that Hume is here rejecting.[6]

For Aquinas, as for the Scholastics in general, rest is the privation of motion. That is, rest is the absence of change in a thing capable of it by nature. Time can be said to measure rest in so far as the unchanging object has a potential to motion. The object, though unchanging, is changeable. The suggestion, then, is that it is owing to an object's capacity for change that time can be said to measure its rest or stasis. However, Aquinas himself gives little detail as to how exactly it is that time can be said to measure the duration of changeless objects. More helpful in this regard is Duns Scotus. To accommodate the different temporal natures of motion and rest, Scotus draws a distinction between real time and privative time. Real time is simply the familiar Aristotelian time considered as the measure of change. Privative time is the time that can be said to measure rest. To illustrate his notion of privative time, Scotus bids us consider a "uniform immobile [i.e., unchanging] existence." Despite the absence of change, Scotus insists, the object at rest has a kind of "privative" duration that can be measured by time. He writes:

> even to this uniform immobile existence there corresponds a proper measure, which is

> time. And between any two imagined instants of this [privative] duration there could have been an interval of so much movement, and so, if we call time the measure of flow or motion, then this immobile [i.e., unchanging] existence would have a time period, although the flow of time would not be actual or positive but only potential and privative. Hence, if a mind aware of actual positive time were to use it to measure this period of uniform [privative] duration, it would know how long it was, namely, the positive extent of time that would have elapsed if time had been positive (*Quodlibetal questions* q 11, art. 2).

According to Scotus, time is the measure of rest in so far as we can use our perception of "actual positive time" to measure a quiescent object's potential changes, what Scotus calls its "privative duration." In such cases, what we are doing is measuring the succession that would have occurred in the object had it actually been in motion. Not all Scholastics followed Scotus in drawing an explicit distinction between actual and privative time. Nevertheless, the general notion that the duration of static objects is indirectly measurable by time in so far as objects at rest are in a state of privation or potentiality to motion was widely accepted.

We can now see on what grounds Hume objects to the "common opinion of philosophers" that time is the measure of rest. For Hume straightforwardly denies that the idea of time or succession can be correctly ("in any propriety or exactness") applied to a steadfast unchanging object (T 1.2.3.11; SBN 37), since if an idea cannot be derived from a given object, it cannot be correctly applied to it. Because the idea of time can be acquired only from a "*perceivable* succession of changeable objects," it is only such successions that can be said to have real duration (T 1.2.3.7; SBN 35; Hume's emphasis).

However, as is his wont, Hume is eager to explain the psychological mechanism that leads us mistakenly to believe that unchanging objects have real duration. According to Hume, this "fiction" occurs because we have always present to our minds a succession of perceptions

and, hence, the idea of time. As a result,

> when we consider a stedfast object at five-a-clock, and regard the same at six; we are apt to apply to it that idea [of succession] in the same manner as if every moment were distinguish'd by a different position, or an alteration of the [steadfast] object. The first and second appearances of the object, being compar'd with the succession of our perceptions, seem equally remov'd as if the object had really chang'd (T 1.2.5.29; SBN 65).[7]

Against Scotus' claim that a mind "aware of actual positive time" can use it to measure the stasis or rest of a coexistent unchanging object, Hume contends that our idea of positive time cannot be correctly applied to unchanging objects, but that we are deceived into thinking it can by the apparent temporal distance of the first and second appearances of the steadfast unchanging object. In this way, Hume makes clear his opposition to the Scholastics and offers an explanation as to why both they and the vulgar think otherwise.

However, in explaining our tendency to fictitiously ascribe duration to steadfast unchanging objects, Hume goes on to make a surprising concession. For, he explicitly allows that such objects are in fact susceptible of change during the period marked out by the coexistent succession. What is more, he concedes that the unchanging object has the capacity to undergo the *same number* of changes as there are distinct moments in the coexistent succession. Returning to the example of the unchanging object viewed at 5 o'clock and again at 6 o'clock, Hume writes, "to which we may add, what experience shews us, that *the object was susceptible of such a number of changes* betwixt these appearances" as moments in the coexisting succession (T 1.2.5.29; SBN 65; italics added). Thus, Hume seems to grant the Scholastics everything they need, since he allows not only that the unchanging object is capable of change during the period marked out by the coexistent succession, but that it is capable of undergoing an *equal number* of changes as occur in the coexistent succession. But, we can

imagine Scotus objecting, is this not to acknowledge that we can assign a number to the period of stasis of the unchanging object? And is this not precisely what measure consists in? Why then does Hume refuse to allow that time is the measure of rest? Has he simply misunderstood the Scholastic position? Is their disagreement a mere dispute about words?[8]

It would seem that the most plausible Humean grounds for rejecting the Scholastic view that time is the measure of rest is to reject the implicit basis for that view, namely that the steadfast and unchanging object is potentially divisible into temporal parts. Hume and the Scholastics agree that an unchanging object undergoes no succession and thus has no actual temporal parts. However, on Scotus' view, our idea of an actual succession serves to mark out potential temporal divisions in the unchanging object. It is for this reason that he can speak of such objects as having a kind of privative duration that is measurable by time. However, Hume seems to commit himself to the view that if an object is divisible, it must have actual, and not merely potential parts.[9] As Hume puts the point, "every thing capable of being infinitely divided contains an infinite number of parts" (T 1.2.2.2; SBN 29).[10] Donald Baxter (2003, 23–25) refers to this as Hume's Divisibility Assumption. It follows from this principle that if a thing does not have actual parts, it is not divisible—not even potentially. Although Hume develops this view with regard to spatial extension, he explicitly treats the temporal case as parallel (e.g., T 1.2.2.4, SBN 31). As a result, Hume seems to commit himself to the view that an object that has no actual temporal parts must also lack potential temporal parts; it is strictly indivisible. Thus, a plausible Humean ground for rejecting the Scholastic claim that time "is a measure of rest as well as of motion" is that the latter presupposes that unchanging objects, insofar as they are capable of change, are divisible into potential temporal parts. And this, there is good reason to believe, Hume rejects.

Still, this is not altogether satisfactory. For, we need to understand how it is that Hume can at once affirm that the steadfast unchanging object is characterized by possible but non-

actual succession—indeed, is such that we can count the number of potential changes—while at the same time maintaining that the SUO does not contain potential temporal parts. It is far from clear how these two claims can be reconciled. After all, if one holds with Hume that actual parts of time are marked out by successive changes in an object, it seems natural to understand potential changes in terms of potential temporal parts. But these latter, as we have just seen, Hume refuses to allow. Thus, by following Hume's own hints, our puzzle has deepened. Before presenting our own solution, it will be useful to consider the account of steadfast objects developed by Donald Baxter as a potential source for resolving the difficulty.

2. Baxter on Steadfast Objects

For Baxter there are two crucial features of steadfast objects upon which Hume's treatment of their relation to time depends. First, steadfast objects occupy moments that are temporal simples. Because these objects undergo no change, the moments they occupy contain no parts, not even potential parts. In a word, they are indivisible, temporal simples. Second, these moments, though temporally simple, coexist with temporal successions. For Baxter, it follows from these two claims that Hume must hold that although moments are temporal simples, they are nevertheless temporally extensive. Indeed, they must be of varying temporal extent. Baxter (2003, 33) characterizes Hume's position as follows:

> on Hume's view of duration as an abstraction, steadfast objects do not endure. They are temporal simples. Yet he is clear that they coexist with successions, and so they do not just briefly exist. But if they exist more than briefly, how can they lack duration? I show that Hume held the strange view that not all temporal simples are uniformly brief and that some temporal simples coexist with successions.

We can summarize Baxter's reasoning as follows. Steadfast objects are in time, yet they have no succession and consequently no duration. Now, if a thing is in time, yet has no duration, it must be momentary. However, because non-durational, steadfast objects can coexist with

temporal successions of greater or lesser extent, some momentary objects must be more or less brief than others.

It is important to be clear on the precise sense in which Baxter's steadfast moments have temporal extent or magnitude. To understand his proposal, it will be convenient to begin with the case of extension. Hume reserves the term "extension" for spatial magnitude that is compositionally complex.[11] On his view, extension is "a composition of visible or tangible points dispos'd in a certain order" (T 1.2.5.21; SBN 62). For Hume, to be extended just is to be composed of contiguously arranged actual spatial parts. It follows from this account of extension that a spatial indivisible cannot be extended for the simple reason that it has no parts. Hume calls spatial indivisibles points (e.g., T 1.2.3.14, SBN 38). Thus, by definition, a point is not extended. Nevertheless, insofar as a concatenation of such points composes an extension, and no collection of entities of zero magnitude can form a real, positive extension, the points can be said to have a definite spatial extent or magnitude. The question then is this: Can two simple, indivisible colored or tactile points have different spatial magnitudes? One way to get at this is to ask whether a single indivisible point can be coextensive with two or more such spatial points. For Hume, the answer is no. All visible points are minima and so all are of the same spatial extent or magnitude.

Now, what about time? The temporal analogue of extension is duration or succession. To have duration is to be temporally extended—it is to be composed of temporal parts. Hume refers to the parts of time as "moments" and the simple, indivisible parts of time as "indivisible moments" (T 1.2.2.4; SBN 31). Thus, by definition an indivisible moment cannot have duration. Can it have temporal extent? On Baxter's reading, the answer is yes. Steadfast and unchanging objects are temporally indivisible and therefore each occupies a single moment. They are not temporally extended; they do not have duration. Nevertheless, they are of different temporal magnitudes. One simple moment may coexist with a succession of several moments.

Thus, for Baxter there can be indivisible moments of different temporal extent. This seems to be what Baxter means when he speaks of moments which despite their simplicity can be more or less brief.

Thus, on Baxter's reading there is a crucial asymmetry between the mereological structure of space and that of time. While both are ordered arrangements of simple indivisible parts, in the case of space, the indivisible parts of which it is composed are true minima and for that reason are all of the same extent. In the case of time, however, the indivisible parts that compose a duration differ in extent. Baxter (2003, 41) is well aware of this implication of his reading, which he characterizes as follows: "something without temporal parts can coexist with a temporal succession. But something without spatial parts cannot be located along a spatial succession. So time is very unlike space." Indeed, Baxter takes this asymmetry to be a merit of his reading in so far as it does justice to our ordinary belief that space and time are fundamentally different in structure.

However, it is not at all clear that this understanding of steadfast unchanging objects as occupying moments that despite being simple exist "more than briefly" is consistent with Hume's other philosophical commitments. While several worries might be raised in this connection, the most important concerns Hume's endorsement of what might be called the Principle of Quantitative Comparison. Hume appeals to this principle to help secure his claim that the idea of duration is the idea of a real succession of objects. The principle holds that in order to conceive of a thing as having more or less temporal extent, it must be composed of (actual) temporal parts. Hume formulates the principle as follows: "'Tis evident, that time or duration consists of different parts: For otherwise we cou'd not conceive a longer or shorter duration" (T 1.2.3.8; SBN 35-6). According to Hume, if time or duration did not consist of parts, we could not speak of one duration being greater or less than another. It follows that every simple, indivisible duration must be of equal temporal extent with every other.

Hume's endorsement of the Principle of Quantitative Comparison poses a particular problem for Baxter's interpretation, since on his reading there is a clear sense in which we *can* conceive of some moments as more or less temporally extensive than others, despite their being equally simple and indivisible. However, this seems to violate Hume's principle that "longer or shorter" temporal extent presupposes temporal parts.[12] Consequently, if greater and lesser implies distinct parts, it would seem that Hume cannot countenance a view according to which moments occupied by steadfast and unchanging objects can be of greater or lesser temporal extent, since such moments are one and all temporal simples.

Thus, Baxter's account of SUOs as more or less brief runs afoul of a central premise in Hume's argument that we can form no idea of time in the absence of a perceived succession. However, the problem runs much deeper. For it is precisely by appeal to the Principle of Quantitative Comparison that Hume establishes that the minimum conceivable quantity is an absolute minimum. Having argued that owing to the finite capacity of the mind our ideas of extension must be composed of simple, indivisible parts, Hume maintains that the ideas of these parts constitute a "minimum"—that is, a least conceivable quantity. He goes on to argue that not only are we unable *to conceive* of anything smaller than such indivisible points, but that in fact nothing *can be* smaller than these points. According to Hume, "nothing can be more minute, than some ideas, which we form in the fancy; and images, which appear to the senses; since these are ideas and images perfectly indivisible" (T 1.2.1.5; SBN 28).[13] Hume's argument turns on the premise that if a given quantity is greater than another, it must be divisible into parts, which simple indivisible points necessarily lack. It follows that two simple, indivisible points cannot differ with regard to extent. Equally devoid of parts, the one cannot be conceived as larger or smaller than the other. They are, in a word, true minima.

Indeed, so crucial is this point for Hume's purposes in *Treatise* 1.2, that without it the argument against the infinite divisibility of finite extension is in danger of collapse. For Hume's

argument to succeed, he must be able to rule out the possibility of proportional parts—that is, of a finite extension composed of an infinite number of parts of ever diminishing extent (e.g., 1/2, 1/4, 1/8 . . .). If such a sequence of parts could be envisaged, then it would indeed be possible for a finite extension to be composed of an infinite number of parts. In a footnote, Hume famously dismisses this objection as "frivolous" on the grounds that nothing can be smaller than a simple, indivisible point. However, crucial to Hume's reply is his claim that the ultimate parts of extension, being simple and indivisible, are of uniform (minimum) extent. For if two simple, indivisible points could differ in size, there would be nothing to rule out the possibility of an infinite number of successively smaller parts summing to a finite extension.[14] While Hume might still appeal to the finite capacity of the mind to block the infinite divisibility of our *idea* of extension, he would no longer be in a position to infer that mind-independent, physical extension must likewise be composed of a finite number of simple and indivisible parts. Thus, Hume's rejection of the infinite divisibility of mind-independent extension crucially depends on his embrace of the Principle of Quantitative Comparison.

Although Hume does not explicitly formulate the same argument with regard to temporal parts, he does state that "all this reasoning takes place with regard to time" (T 1.2.2.4; SBN 31). More generally, Hume is clearly committed to rejecting the infinite divisibility of finite duration, the absurdity of which he declares to be, if anything, "still more palpable" than in the case of extension (EHU 12.19; SBN 157). Thus, it would appear that Baxter's reading of steadfast unchanging objects—ingenious as it is—is difficult to reconcile with several of Hume's basic metaphysical commitments and so must be abandoned. However, if this is right, we are still left with our original puzzle. How can Hume affirm that steadfast unchanging objects are potentially divisible, while at the same time rejecting their composition out of potential temporal parts? To see how Hume attempts to resolve this difficulty, we must turn now to his account of fictitious distance and the vacuum.

3. Hume on Vacuum

Let us recapitulate the problem before proposing our own solution. On the one hand, Hume maintains that steadfast unchanging objects are temporally indivisible—not only actually, but even potentially. On the other hand, in so far as they are capable of undergoing a determinate number of alterations in a given length of time, he seems to suggest that such objects are at least potentially temporally divisible. But, of course, nothing can be both temporally divisible and temporally indivisible. How can Hume be saved from this apparent inconsistency? The same problem might be expressed in a slightly different way. How can Hume allow that an SUO is susceptible of having an exact duration given that it is not even potentially temporally indivisible and does not involve any unoccupied temporal locations? How can Hume account for possible exact duration without appeal to potential temporal parts or unoccupied temporal locations?

To understand Hume's account of the "fictitious" duration that characterizes a steadfast object considered with respect to two different moments of a coexistent succession, it will be helpful first to consider his corresponding discussion of our supposed idea of a vacuum. There is reason to believe that Hume's extended argument for the inconceivability of a vacuum can help to shed light on his account of steadfast unchanging objects, since Hume explicitly draws a parallel between the two cases and his position on the vacuum is developed in considerably more detail than the corresponding account of time.

The relevant discussion occurs in *Treatise* 1.2.5, where Hume undertakes to defend his claim that we can form neither the idea of a vacuum—that is, of extension without body—nor the idea of time without actual change. He considers three objections. First, whichever side one takes in the dispute concerning the existence of a vacuum, that debate is even possible proves that we must have some coherent notion of a vacuum. Second, the traditional thought experiment concerning the annihilation of matter within a chamber shows that a vacuum is, in

fact, conceivable. This second objection is based on a widely discussed thought experiment in which we are to imagine that God annihilates all of the matter within a room without creating any new matter to take its place or allowing any motion in the surrounding walls (T 1.2.5.3; SBN 54–5). Consideration of the state of the room following the annihilation, it is claimed, yields a coherent concept of a vacuum. Third, motion in a plenum is impossible, and therefore we could not form an intelligible notion of motion did we not also have the idea of a vacuum (T 1.2.5.4; SBN 55). Of the three objections, the most important for our purposes are the second and third.

To meet these objections Hume argues that while we cannot form a true idea of a vacuum, we are able to form a related idea, which we mistakenly take to be that of a vacuum. For Hume, the idea of a vacuum properly speaking would be "the idea of extension without matter" (T 1.2.5.7; SBN 56; Cf. SBN 40). In other words, the idea of a vacuum, were it possible, would be the idea of non-material spatial units so ordered as to constitute a spatial extent. While Hume denies that such a thing is conceivable, he argues that we are able to form a related idea, which because it shares several features in common with the idea of extension, deceives us into thinking that we are able to conceive of a vacuum properly speaking.[15]

The key to Hume's account is to draw a distinction between two kinds of distance. The first is the distance that characterizes "real" physical extension (T 1.2.5.14; SBN 58). It is the distance between two visible bodies separated by a spatial arrangement of colored points.[16] The other, which Hume refers to as "imaginary" (T 1.2.5.13; SBN 58) or "fictitious" distance (T 1.2.5.23; SBN 62), is distance without visible extension. It is the idea of the latter that according to Hume is commonly mistaken for a true idea of a vacuum. But what could the idea of "imaginary" distance be? To explicate this idea and distinguish it from that of a genuine vacuum, Hume begins with the idea of darkness. He writes, "'Tis evident the idea of darkness is no positive idea, but merely the negation of light, or more properly speaking, of colour'd and

visible objects" (T 1.2.5.5; SBN 55).[17] According to Hume, our idea of darkness is not derived from any distinct visual impression.[18] Rather, it is an idea formed by the removal of all visible objects. As such, the idea of darkness has no positive content. It is a purely negative idea—the idea of an absence and, more specifically, of the absence of light.[19] From this Hume concludes that to conceive of darkness is not to conceive of a vacuum: "… 'tis not from the mere removal of visible objects that we receive the impression of extension without matter; and that the idea of utter darkness can never be the same with that of vacuum" (T 1.2.5.5; SBN 56).

Hume next considers whether we might derive the idea of a vacuum from the experience of darkness in conjunction with a number of visible objects. To this end, he bids us consider the same darkness within which now appear two visible, non-contiguous bodies. Hume observes:

> 'tis evident, that when only two luminous bodies appear to the eye, we can perceive, whether they be conjoin'd or separate; whether they be separated by a great or small distance; and if this distance varies, we can perceive its encrease or diminution, with the motion of the bodies. (T 1.2.5.10; SBN 57)

In this case we have a visual experience of two bodies separated by darkness or a pure absence of light. Nevertheless, Hume insists that this experience does not convey a true idea of vacuum. For what lies between the luminous bodies is not articulated extension—that is, an ordered arrangement of spatial points. It is, in keeping with the foregoing account of darkness, quite literally nothing. Consequently, the invisible extent that separates the pair of visible bodies lacks the spatial composition that is the hallmark of extension. The invisible distance is "nothing but darkness, or the negation of light; without parts, without composition, invariable and indivisible" (T 1.2.5.11; SBN 57). It is presumably for this reason that Hume refers to the invisible extent as "fictitious" distance—a fact that has been largely overlooked by recent commentators (T 1.2.5.23; SBN 62).

Nevertheless, this invisible distance has two important features that lead us to mistake it for a genuine perception of a vacuum. First, the darkness yields to real extension; that is, the invisible distance can come to be replaced by a visible, extended body. Second, the fictitious distance can be replaced not merely by visible extension, but by an extension of determinate dimensions, say, of two feet in length (T 1.2.5.16, SBN 59). As Hume puts the point, the darkness or fictitious distance that separates the two non-adjacent colored points can receive real, visible extension "without any sensible impulse or penetration" (T 1.2.5.16; SBN 59).

But does this not imply that the darkness is not "fictitious" distance after all, but rather a real distance of determinate dimensions? Here we see the spatial analogue of the same two worries that we earlier raised concerning steadfast and unchanging objects. First, Hume allows that in the case of two non-contiguous visible bodies we can perceive the invisible distance that lies between them to be "great or small" and, should the bodies be in motion, we can likewise perceive the "increase or diminution" of that distance (T 1.2.5.10; SBN 57). But, we might ask, how can the invisible distance between two visible bodies be greater or lesser, if it is not composed of parts? For as we have seen, on Hume's view quantity, whether temporal or spatial, presupposes divisibility into parts. Second, Hume allows that the invisible, "fictitious" distance can be converted into a visible distance of determinate dimensions. Does this not imply that the fictitious distance is at least composed of potential parts, since presumably into the two foot gap we can fit two one-foot bodies or 24 one-inch bodies, and the like? Why then can we not say that the fictitious distance has potential parts? How can Hume hold that the invisible distance could be converted into a visible distance – given that it is spatially simple and not even potentially divisible? Once again Hume's position seems threatened with inconsistency.

To answer these questions, we must take note of two key elements of Hume's account, neither of which has received due attention in recent discussions. First, Hume characterizes the invisible distance in causal terms. As Hume puts the point, "an invisible and intangible distance

may be converted into a visible and tangible one, without any change on the distant objects" (T 1.2.5.16; SBN 59). Hume consistently characterizes this conversion in dispositional terms and speaks of the convertibility of invisible distance into real extension as a kind of capacity or power—that is, as a "power of receiving body" (T 1.2.5.26n12; SBN 639). This is in line with Hume's use of causal terminology when discussing the conversion (T 1.2.5.16, 18, 24, 25, 26n12, and 27; SBN 59, 63, 64, and 638–9).[20] "Capacity" here must be understood as a causal term—a point that Hume himself makes explicit when he affirms that "the first species of distance is found to be convertible into the second, 'tis in this respect *a kind of cause*" (T 1.2.5.21; SBN 62, emphasis added). Likewise, he speaks of the "cause, which separates bodies after this manner, and gives them a capacity of receiving others betwixt them, without any impulse or penetration" (T 1.2.5.24; SBN 63–4). Thus, Hume treats the question of how an indivisible "fictitious distance" is able to receive visible extended bodies of determinate size as a causal one.

In this way, Hume characterizes the invisible or fictious distance between the visible bodies not simply as a pure absence of light, but as a kind of causal power or capacity to receive real, visible distance.[21] However, this raises a second question: How do we know that the invisible distance possesses this power or capacity? Hume's answer is "by experience"—a point he repeats no fewer than six times (T 1.2.5.16, 24, and 25; SBN 59, 63, and 64). The most telling of these is the following passage in which the claim occurs twice:

> Afterwards experience comes in play to persuade us that two bodies, situated in the manner above-describ'd, have really such a capacity of receiving body betwixt them, and that there is no obstacle to the conversion of the invisible and intangible distance into one that is visible and tangible. However natural that conversion may seem, we cannot be sure it is practicable, before we have had experience of it (T 1.2.5.24; SBN 63).

What does Hume mean by saying that we know the capacity by experience? His first point is negative: we do *not* know that the visible bodies in darkness have the capacity to receive visible extension merely because we conceive the conversion to be possible. This is shown by the contrast between the previously quoted passage and what Hume says just before it. In that earlier passage, Hume had argued that we can conceive by the imagination that a body between two others is annihilated without causing any movement in the distant bodies (T 1.2.5.24; SBN 63). Therefore, we may imagine that the body is created anew, which again does not cause any movement in the other two. Since an invisible distance converting into a visible distance "has much the same effect," this proves that "there is no repugnance" in this conversion (T 1.2.5.24; SBN 63). In other words, the conversion is conceivable and therefore does not imply a contradiction. By the Conceivability Principle, according to which conceivability entails "absolute" or "metaphysical" possibility, it follows that the conversion is absolutely or metaphysically possible (see T 1.2.2.8, 1.3.14.35, and T Abstract.11; SBN 32, 172, and 651).

However, as was seen above, Hume considers such conversions to be not merely possible, but actual matters of fact. As Hume puts the point, experience shows that the conversion is not merely "possible," but "practicable" (T 1.2.5.24; SBN 63). As is well known, Hume maintains that it is by causal reasoning that we can come to know actual matters of fact that are not present to the senses. Causal reasoning is founded on experience of constant conjunctions. Consequently, Hume must hold that knowledge of this capacity of bodies requires repeated experience of the conversion of an invisible distance into a visible one. One first has the experience of an invisible distance, followed by that of a visible distance "in the place of" the invisible. In order to know that the invisible distance has such a power, we must experience its conversion into a visible distance.

Thus, according to Hume, we find by experience that the fictitious, invisible distance has the power to receive or to be converted into real, visible distance. But if this invisible

distance is not even potentially divisible, how can we explain the fact that it can be converted into visible extension? What accounts for this power? Hume addresses this question at the conclusion of the discussion of the vacuum:

> Here is the whole of my system; and in no part of it have I endeavour'd to explain the cause, which separates bodies after this manner, and gives them a capacity of receiving others betwixt them, without any impulse or penetration.
>
> I answer this objection, by pleading guilty, and by confessing that my intention never was to penetrate into the nature of bodies, or explain the secret causes of their operations. For besides that this belongs not to my present purpose, I am afraid, that such an enterprize is beyond the reach of human understanding, and that we can never pretend to know body otherwise than by those external properties, which discover themselves to the senses. (T 1.2.5.25-26; SBN 63–4)

Hume's answer is that the explanatory why question transcends the limits of human understanding. His solution is skeptical. Hume confesses that he does not know how or why the invisible distance has the capacity of being converted into a visible distance, or more precisely why the visible bodies in darkness have the power to receive without impulse or penetration a visible body of determinate dimensions between them. We humans can know only that such a capacity exists, without being able to explain it.

We have then good textual grounds to conclude that Hume thinks that the conversion from an invisible distance to a tangible one is an instance of causation. That this transformation can and does occur is an observed fact. However, a deeper explanation of this capacity of bodies is beyond the limits of human understanding. We must simply accept that the conversion is an actual fact even though we cannot explain it by any means, for instance by assigning it a cause, perhaps an imperceptible one. Here, then, is Hume's skeptical causal solution to the problem of how an invisible distance, which is not even potentially spatially divisible, can be

converted into a visible distance.

4. Conclusion: Back to Time

Given that Hume's treatments of the vacuum and of time without change are closely analogous—indeed, explicitly treated as parallel—his skeptical causal solution to the former can reasonably be taken to apply to the latter as well. Recall that Hume says of a steadfast object such as a wall considered at 5 o'clock and again at 6 o'clock that "experience shews us, that the object was susceptible of such a number of changes betwixt these appearances" (T 1.2.5.29; SBN 65). In light of our discussion of the invisible or fictitious distance separating two visible bodies, it is reasonable to read this as follows. The steadfast unchanging object has the capacity to change a precise number of times and so to have a precise duration. This we know by experience. Yet we cannot give any deeper explanation of this fact, for example, by assigning an imperceptible cause or by ascribing potential temporal parts to the object. Thus, by transforming what appeared to be a question about the composition of moments into a causal question, Hume attempts to do justice to our experience of steadfast objects as susceptible of change without thereby committing himself to their being composed of potential temporal parts.

Let us illustrate how this might work using the example of the broom. We might look at the broom as it lies undisturbed on the floor while we hear the second hand of a clock tick 60 times. In this case, the broom is a steadfast unchanging object, which coexists with a succession that is one minute in length. Now, according to Hume, although the idea of time or duration cannot strictly speaking be applied to the broom, we mistakenly believe that it can, since we find by experience that the broom could have undergone an equal number of changes during the sixty second interval. By what kind of experience can we know that the broom had the capacity to change sixty times and so to have endured one minute? By a commonsense experience. After seeing the broom-as-SUO, we could have moved it or caused it to change

with each tick of the clock (e.g., by dripping paint on it or by swinging it back and forth in sync with the second hand). In that case the broom would have changed sixty times and so would have endured for one minute. Notice, however, that had this actually been the case, the broom *would not* have been a steadfast unchanging object, but a succession. Moreover, we could easily have repeated this experiment several times and thereby acquired experience of a constant conjunction between the broom-as-SUO and the broom-as-succession-of-sixty-moments. From thence we could conclude, in accordance with Hume's doctrine of causal reasoning, that the broom has a capacity to change exactly sixty times and so to endure for precisely one minute.

According to Hume, we can draw this conclusion even though we cannot give any deeper explanation of the fact that the broom has this capacity. For instance, we are not able to tell by what cause the broom has the capacity of enduring. The broom just has the capacity, and we know it. In this way, Hume believes he can say that an SUO has a capacity of having an exact duration, while denying that it is even potentially temporally divisible. It should also be emphasized that in offering this solution, Hume does not take himself to be committed to the doctrine of potential temporal parts. For he refrains from speculating about the deeper explanation for the capacity. The broom-as-SUO does not divide into *any* temporal parts. In this way, Hume avoids having to say that the SUO both is and is not temporally potentially divisible. Neither does this mean that the idea of duration is applied to the SUO; rather, it is applied only to the *capacity* (that is, the capacity to have a duration), which is then thought of as the SUO.[22]

Thus, we seem to have found a solution—albeit a skeptical one—to our original problem. Or, perhaps, not. For consider the fact that the SUO is temporally simple. It is temporally indivisible because, as a temporally simple part of a succession, it is a moment. So, its temporal location must likewise be simple. For Hume, the mereology of located beings and

the mereology of their locations go hand in hand. As Baxter (2008, ch. 2) observes, temporal locations on Hume's view are abstractions out of temporally located beings. But how is it even metaphysically possible that the simple location of a temporal simple could be occupied by something temporally complex (a succession)? Is it not this that Hume says is actual, and hence, absolutely or metaphysically possible (given that actuality entails absolute or metaphysical possibility)? To appreciate the force of the worry, one has only to consider the corresponding case with regard to space. The spatial analogue would be that the spatial location of an actual point could be occupied by a line, surface, or volume, which is absurd in Hume's view.

However, this way of stating the problem is based on a misunderstanding. In the conversion of the broom-as-SUO into the broom-as-succession-of-60-members, *the temporal locations do not stay mereologically the same*. The temporal location of the stationary broom—that is, of the broom-as-SUO—is simple, whereas the temporal location of the broom-as-succession is not. Consequently, the problem of how the temporal location of a temporal simple can come to be occupied by a temporal complex does not arise. The two brooms do not occupy mereologically the same temporal locations. By Hume's lights, he can still hold that the SUO is neither actually nor potentially temporally divisible against Scotus and the Scholastics.[23]

We are only misled into thinking that the temporal locations of the broom-as-SUO and the broom-as-succession are mereologically the same due to the co-existence of both with the temporal succession of the clock ticking sixty times. However, the relation of co-existence here is *not* the relation of simultaneity, since the idea of duration does not correctly apply to the broom-as-SUO; it is not really simultaneous with the ticking of the clock, because it is a moment in a different time (that is, a different temporal succession) than the ticking of the clock. Distinct successions constitute different times in Hume's relationist account of time. In this respect Hume's theory can be thought of as a precursor of Einstein's special relativity (Cf. Slavov 2016 and 2019). In fact, for Hume, co-existence is not a temporal relation at all: "'Tis

a property inseparable from time, and which in a manner constitutes its essence, that each of its parts succeeds another, and that none of them, however contiguous, can ever be co-existent." (T 1.2.2.4; SBN 31; cf. T 1.2.3.8 and T 2.3.7.5; SBN 35–6 and 429–30). As Baxter (2008, 29) puts the point, "Talk of some moments *co*existing is talk of them all being present [to the mind, but not *strictly speaking* at the same time]." Therefore, co-existent successions do not even partly determine the temporal locations of beings with which the successions are co-existent. For this very reason, it is possible that the SUO broom occupying a simple temporal location could have been followed by the succession broom while the clock ticks 60 times in each case.

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[1] Following standard conventions, references to Hume’s *A Treatise of Human Nature* will be given in the text in two parts. The first is the Norton and Norton edition (New York: Oxford University Press 2000), abbreviated as ‘T’ followed by book, part, section, and paragraph numbers. The second is the L. A. Selby-Bigge edition, revised by P. H. Nidditch (Oxford: Clarendon Press, 1978), abbreviated as ‘SBN’ followed by page number.

[2] To prevent a possible misunderstanding, we must deal with a verbal peculiarity that runs throughout Hume’s discussion of time. Hume frequently characterizes quiescent objects not as unchanging, but “unchangeable”. Indeed, in the very framing of the question at hand he writes, “by what fiction we apply the idea of time, even to what is unchangeable, and suppose, as is common, that duration is a measure of rest as well as of motion, we shall consider afterwards” (T 1.2.3.11; SBN 37). Hume’s terminology can easily mislead, since it may seem to suggest that the issue concerns objects that are immutable. However, as has just been seen, Hume is

willing to allow that steadfast and unchanging objects are susceptible of change. In fact, despite the apparent modality, Hume uses the term "changeable" to refer to what is characterized by actual variety. Some support for this understanding may be found in the contemporary use of the word "changeable" to mean that which is qualitatively varied. Thus, Joseph's coat of many colors was sometimes referred to as a "changeable coat". But however that may be, we cannot understand Hume unless we read "unchangeable" as referring to things that undergo no actual change. Consequently, in what follows we shall refer to SUOs as "steadfast, unchanging objects."

[3] Technically, for Hume, no object can be said to endure, because duration requires change, and change destroys the numerical identity of objects. However, following Hume himself, we shall for the present speak loosely of objects undergoing change.

[4] For the relation between number and measure in Aristotle's account of time, see Annas (1975).

[5] Aristotle clearly rejects the view that time is identical to change (*Physics* 218 b 9–20). However he goes on to argue that "[time is] not apart from alteration"—that is, that there is no time without change (*Physics* 218 b 21). From this he concludes that time is an "aspect" of change (*Physics* 219 a9 5-9). For the debate concerning how best to understand Aristotle's argument against time without change, see Coope (2001) and Roark (2004).

[6] Of course, to say that Hume is taking issue with the Scholastic notion of time is not to deny that he may also be challenging other contemporary accounts of time, and in particular that of Newton. Recently, several commentators have argued that the Newtonian theory of absolute space and time is Hume's principal target in *Treatise* 1.2. However, even if correct, this cannot be the full story. For the language Hume uses in characterizing the philosophers' account of time is unmistakably Aristotelean, both in its characterization of time as "measure" and in its use of the term "motion" to designate not merely change of place, but all kinds of change, both

qualitative and positional. Moreover, Hume characterizes the view he is opposing as the "common opinion of philosophers" and while Newton's theory of absolute time was certainly one of the main contenders, it would seem an exaggeration to describe it as the "common opinion" of the time. However that may be, the problem we shall raise for Hume's view can be formulated without specific reference to Scholastic philosophy. For recent interpretations identifying Newtonian absolute space as Hume's ultimate target in *Treatise* 1.2, see Boehm (2012; 2016).

[7] In saying that the two appearances of the object seem to be "equally removed" as if the object had actually changed, we take it Hume means that they seem to stand at an equal remove—that is, at an equal temporal distance, from one another as if the object had undergone an actual succession.

[8] It is true that Hume characterizes his opponents as holding that time is "properly speaking" applicable to objects at rest, whereas the Scholastics claim that rest is measurable only *per accidens*. But this hardly seems sufficient to warrant the categorical rejection of the "common opinion of philosophers." Indeed, it seems more likely that Hume's reference to time being "properly speaking" applicable to unchanging objects is meant to draw attention to his own view which is that this is done by a kind of fiction—i.e. improperly.

[9] Holden (2002) argues convincingly that Hume is committed to an actual parts metaphysics in the case of extension.

[10] Cf. "'Tis … obvious, that whatever is capable of being divided *in infinitum*, must consist of an infinite number of parts, and that 'tis impossible to set any bounds to the number of parts, without setting bounds at the same time to the division" (T 1.2.1.2; SBN 26–7; Hume's italics).

[11] "A real extension . . .can never exist without parts, different from each other" (T 1.2.4.3; SBN 40).

[12] Indeed, the very conception of quantity cited by Hume was invoked by certain medieval

philosophers to reject the possibility of simple, non-successive temporal extent, or in other words, to reject the very possibility of Baxterian moments. Perhaps the best known proponent of this view was Bonaventure. As Suarez reconstructs Bonaventure's argument, every created duration can be said to be greater or less than some other. It follows that every created duration is successive, since "among indivisible things, as such, comparison with respect to greater and lesser is not intelligible" (DM 50 5.4). According to Bonaventure to be subject to comparisons of more or less is to have extensive quantity. But to have extensive quantity is to have parts—that is, to be divisible. Therefore, if two things are indivisible, it cannot be said that one is greater or less than the other.

[13] Nidditch's edition of the *Treatise* has "there" in place of "these" in the cited passage. However, as David Fate Norton rightly notes, "the sense requires 'these'. It is not simply that some ideas are perfectly simple and indivisible. It is, rather, that the very ideas under discussion, the smallest ideas of the imagination and the smallest images of the senses, are perfectly simple and indivisible" (n. 116, p. 648 in the second volume).

[14] Thomas Holden also notes that Hume's argument against the infinite divisibility of finite extension presupposes that the simple spatial parts of which all extension is composed are uniform in extent or length. However, according to Holden (2002, 23n29), Hume merely assumes this to be the case. We believe that Hume has an argument for this claim.

[15] For a history of debates concerning space and vacuum, see Grant (1981) and Cottrell (2019).

[16] In keeping with his twofold account of extension as a concatenation of visible or tangible points, Hume distinguishes two kinds of fictitious distance: invisible and intangible. For simplicity of exposition, we shall in what follows confine our attention to the visual case.

[17] Unfortunately, Hume nowhere provides a full-fledged theory of negation. Thus, it is difficult to develop his account of negative ideas beyond what little can be gleaned from the passages at hand.

[18] "this distance causes no perception different from what a blind man receives from his eyes, or what is convey'd to us in the darkest night" (T 1.2.5.11; SBN 57).

[19] Here Hume appears to be taking issue with Locke (and perhaps others, such as Edmund Law), who argues that all ideas are positive ideas, even those of privations. Cf. Locke, *Essay* Bk. 2, Ch. 8, Sects 1–2.

[20] Hume discusses the spatial analogue both in the second associative relation between invisible and visible distance (T 1.2.5.16; SBN 59) and in his response to the second and third objections to his view that there can be no idea of the vacuum, or space without anything visible or tangible (T 1.2.5.23–4; SBN 62–3).

[21] Although it would seem more natural to ascribe the capacity or power to receive real extension to the visible bodies rather than to the fictitious distance that separates them, as a matter of fact Hume is not entirely consistent on this point, sometimes ascribing it to the one and sometimes to the other. Thus, in summarizing his view, Hume speaks of "the cause, which separates bodies after this manner, and gives them a capacity of receiving others betwixt them" (T 1.2.5.25; SBN 63–4). On other occasions, however, he ascribes the power to the fictitious distance, as when he affirms that "this invisible and intangible distance is also found *by experience* to contain a capacity of receiving body, or of becoming visible and tangible" (T 1.2.5.25; SBN 63, Hume's italics). One possible explanation for this laxity on Hume's part is that ultimately he takes the invisible distance itself to be a property of the visible bodies. Thus, in the discussion included in the appendix, Hume writes "if it be ask'd, whether the invisible and intangible distance, interpos'd betwixt two objects, be something or nothing: 'Tis easy to answer, that it is *something*, viz. a property of the objects, which affect the *senses* after such a particular manner" (T 1.2.5.26n12; SBN 638, Hume's italics). However that may be, we have followed Hume in ascribing the power indifferently to the invisible distance and to the visible objects that enclose it.

[22] Note that this is not time without change, that is, absolute time. Strictly speaking, the SUO does not endure. By this denial Hume blocks an argument for Newtonian absolute time, as Boehm and Cruz (forthcoming) have argued. To put it briefly, if we did have an idea of an enduring SUO, it would be possible to conceive of time without change and, consequently, of Newtonian absolute time.

[23] Note that spatial locations are not mereologically the same in the invisible/visible distance case either, because there is *no location at all* in the darkness "part" of the perception of the luminous points: it is absence of locations, not a simple location; mereology of locations does not apply to it.