

# HUME, REALISM, AND THE INFINITE DIVISIBILITY OF SPACE

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Master of Arts

In

Philosophy

by

Kenneth Alexander Feinstein

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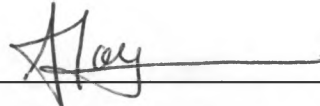
CERTIFICATION OF APPROVAL

I certify that I have read *Hume, Realism, and the Infinite Divisibility of Space* by Kenneth Alexander Feinstein, and that in my opinion this work meets the criteria for approving a thesis submitted in partial fulfillment of the requirement for the degree Master of Arts in Philosophy at San Francisco State University.



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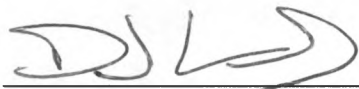
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HUME, REALISM, AND THE INFINITE DIVISIBILITY OF SPACE

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2015

In *A Treatise of Human Nature*, David Hume offers arguments against the infinite divisibility of space. Some commentators have offered interpretations of these arguments suggesting that a label of “realist” or “materialist” might apply to Hume’s philosophy. However, a careful reading of the text shows that Hume actually had the opposite intent. These arguments against the infinite divisibility of space demonstrate Hume’s method of examining our ideas and their source impressions to solve philosophical problems. This method serves Hume’s overarching skeptical goals by strictly circumscribing the scope and reach of human knowledge.

I certify that the Abstract is a correct representation of the content of this thesis.



Chair, Thesis Committee

4/27/15

Date

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David Hume's experimental approach to philosophy, as developed in *A Treatise of Human Nature*, seems to defy classification. The skeptical arguments are thoroughgoing: he champions the possibility of uncaused events, questions the persistence of unobserved objects, and challenges the most basic notions of personal identity. However, at the same time, he attempts to guide us in using our human reason to understand the world around us. Hume provides guidelines for making good causal inferences and attempts, as an overarching goal of his *Treatise*, to provide a firm philosophical basis for scientific investigation.

These approaches may at first glance seem at odds with each other. Many commentators have tried to reconcile them by assigning the label of "realism" to Hume's philosophy. They acknowledge his skepticism, but suggest that he ultimately takes a realist stance on the external world. However, a careful reading of the *Treatise* shows Hume to be consistent in his skeptical approach and rejection of the philosophical viewpoint that today might be classified as "realism." Hume analyzes and engages in the world around us while maintaining his skeptical distance. He does so without making any grandiose ontological and epistemological commitments to the "real" world somehow underlying the one we perceive.

In Book 1, Part 2 of the *Treatise*, Hume offers detailed arguments against the infinite divisibility of space. These arguments provide an excellent proving ground to determine Hume's ultimate ontological and epistemological position. Any realist philosophical viewpoint would require some method of reifying the objective reality of space. If Hume does so in his investigation of the infinite divisibility of space, then the

“realist” label might fit. However, if he explicitly rejects such an approach, then it is hard to see how the “realist” label can stick.

Hume’s arguments against the infinite divisibility of space can plausibly be read with realist interpretations, and several commentators have advanced interpretations along these lines. In this thesis, I will analyze these arguments in detail. I will then provide an alternate interpretation of the text that places Hume’s views on space squarely in-line with his skeptical approach in general. I will show that he makes no claims about the objective reality of space independent of our experience of it, and that the philosophical framework advanced in the *Treatise* wouldn’t even allow him to make such claims.<sup>1</sup>

### **Placing Infinite Divisibility of Space Within the Context of the *Treatise***

Hume’s rejection of the infinite divisibility of space is often glossed over in analyses of the *Treatise*. For one thing, it seems mired in long-forgotten controversies which don’t seem relevant to present day readers. For another, it is grouped together with Hume’s empiricist position on geometry, one which he seems to have later renounced in *An Enquiry Concerning Human Understanding*. However, it is a mistake to pass over these arguments concerning the infinite divisibility of space. When viewed in the context

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<sup>1</sup> This thesis is limited to an examination of Hume’s discussion of space and time in the *Treatise*. No attempt is made to examine his views on geometry or to incorporate any of Hume’s later works. Examination of any possible sources for Hume’s arguments regarding space is also beyond the scope of this thesis. Specifically, the theories of Descartes, Locke, Berkeley, and Bayle are not considered. In addition, only a small fraction of the substantial literature on Hume’s “realism” is considered.



of the development of Hume's methods of inquiry in the *Treatise*, they are an important part of the book's overall argument structure.

Hume begins the *Treatise* in Book 1, Part 1, Section 1 with his explication of how all of our ideas are copies of preceding sense impressions. Then, in Part 1, Section 5, he argues against abstract ideas, suggesting that all of our ideas can be traced back to individual impressions. These two sections form the groundwork for the method he is to use throughout the rest of the *Treatise*. This method resolves philosophical issues by examining the idea in question and tracing it back to the original impression.

It's in his examination of space and time, and specifically in his arguments against the infinite divisibility of space, that he first uses this method. As he writes in Part 2, Section 3:

No discovery cou'd have been made more happily for deciding all controversies concerning ideas, than that above-mention'd, that impressions always take the precedency of them, and that every idea, with which the imagination is furnish'd, first makes its appearance in a correspondent impression. (T 1.2.3.1)

So, Hume proposes this method, of tracing ideas back to the original impressions, to "decide all controversies concerning ideas." But, as Hume makes clear from the beginning of the *Treatise*, all of our experience of the world and knowledge of the world are limited to our impressions and the corresponding ideas. Even our abstract ideas are traceable to individual ideas which are copies of our original sense impressions (T 1.1.7.1).

This emphasis on impressions and ideas is the cornerstone of Book 1 of the *Treatise*. It is the main method Hume uses to resolve philosophical conundrums. He is very clear in the Introduction how great he considers the promise of this method:

‘Tis impossible to tell what changes and improvements we might make in these sciences [Mathematics, Natural Philosophy, and Natural Religion] were we thoroughly acquainted with the extent and force of human understanding, and could explain the nature of the ideas we employ, and of the operations we perform in our reasonings. (T Intro.5)

Examining human understanding in order to make progress in the sciences also leads Hume to a profound skepticism. Taking this perspective, all of our investigations of the world are limited to the examination of our impressions and ideas. We’re not in an epistemological position to get beyond that. This shuts down speculation as to the “real” nature of things, since we have no basis for speculating on these matters. We’re limited to our sense impressions and the ideas that arise directly from them.

As Hume explains in a footnote to his discussion of a vacuum:

Nothing is more suitable to that philosophy, than a modest scepticism to a certain degree, and a fair confession of ignorance in subjects, that exceed all human capacity. (T n12)

In other words, our human capacities are limited to our perceptions and the ideas we form from them. Our human capacities cannot get beyond this, and so we must remain ignorant of the “real” nature of things.

Ironically, as I will show below, this form of skepticism allows Hume to provide certainty in resolving certain questions. Hume offers what he considers to be conclusive demonstrations of why space is not infinitely divisible and vacuums cannot exist. He is

able to do so merely by examining our idea of space; that is sufficient to settle these matters. This actually provides strong evidence for Hume's skepticism, in terms of the strict epistemological limits he places on us as human beings. These limitations allow him to come to these firm conclusions.

This interpretive stance might be labeled "idealism," and such a label provides a neat contrast with the "realist" and "materialist" arguments I will counter below. However, I am not suggesting that Hume is limiting the world to our impressions and ideas. He is not denying the existence of the external objects we perceive and think about; he is only putting strict limits on our understanding of them. We perceive the world and can only interpret and understand it via our ideas directly derived from those perceptions.

By emphasizing these limits on our understanding, however, Hume achieves an overarching philosophical goal. He is also able to limit our speculations about the ultimate nature of reality. This is the core of Hume's skepticism, and arguably the core message of the *Treatise*.

### **Kemp Smith's "Naïve Realism" Interpretation**

David Hume's explanation of space and time, and specifically his arguments about the infinite divisibility of space, are amenable to several types of realist interpretation. Some commentators have suggested that his view is that of "naïve realism" -- that our ideas of space and time accurately reflect the objective reality of space and time.

Others offer a more nuanced view, that Hume maintains a skeptical approach, but still assumes an objective or material reality producing our impressions and ideas. This view is called “skeptical realism” or “skeptical materialism” or “critical realism.” It is a suggestion that Hume is a realist deep down -- he is just putting some limits on human knowledge of this “real” world. I will examine each of these interpretations in turn.

In *The Philosophy of David Hume*, Norman Kemp Smith accuses Hume of “naïve realism” (Kemp Smith 293). He bases this interpretation largely on a few passages in the text concerning space and time which clearly *do* admit to a possible realist interpretation.

Kemp Smith doesn’t fully develop his exegesis of these passages. He presents the passages and suggests their realist interpretation without giving a detailed explanation. So, I will need to reconstruct some of the details of a “naïve realist” interpretation.

Kemp Smith selects two passages from the *Treatise* to demonstrate Hume’s “naïve realism.” I will take each of them in turn and show that Hume did not intend for us to interpret them as in support of a philosophical position that we today might call “realism.” Instead, they are meant as reinterpretations of well-worn examples that he uses to make a novel philosophical point.

The first example relates to space and is thus the most relevant to the topic of this thesis. I reproduce it here in full:

'Tis not for want of rays of light striking on our eyes, that the minute parts of distant bodies convey not any sensible impression; but because they are remov'd beyond that distance, at which their impressions were reduc'd to a *minimum*, and were incapable of any farther diminution. A microscope or telescope, which renders them visible, produces not any new rays of light, but only spreads those, which always flow'd from them; and by that means both gives parts to

impressions, which to the naked eye appear simple and uncompounded, and advances to a *minimum*, what was formerly imperceptible. (T 1.2.1.4)

Kemp Smith doesn't give a full exegesis of this passage, but the realist interpretation seems easy to reconstruct. A "naïve realist" reading would go something like this: Light rays are phenomena of the real world which we have learned about through scientific investigation. They directly impact our eyes, producing the simple impressions of colored points. A microscope or telescope improves the ability of our eye to produce these impressions of colored points. These colored points weren't perceptible to the unaided eye because the real object was either too small or too far away.

With this reading, Hume is telling us here the ultimate source of our impressions: real external objects which affect our perceptual apparatus. Scientific investigation into the world around us provides detailed information about the source of our impressions and thus the ideas that arise from them. Impressions and ideas are physiological and psychological phenomena by which we process the real world around us.

However, this interpretation seems at odds with the skepticism evident throughout much of the *Treatise*. I will here propose a different reading of this passage that seems much more plausible and in-line with the rest of the *Treatise*.

The first step in unraveling Hume's intent is to look at the preceding paragraph. There, Hume explains that when the imagination divides any finite quality into divisions and subdivisions, at some point it reaches a minimum. For instance, the image in one's mind of a grain of sand cannot be subdivided into even 20 different parts. Even though

we can understand a number like one ten-thousandth, and manipulate it mathematically, our minds are not capable of subdividing the idea of a grain of sand into so many separable, distinct parts.

Hume then continues, in the two sentences that precede the passage quoted above, to explain that impressions behave in the same way as ideas. So, if you put a spot on a piece of paper and walk away from it, at some point the spot will reach a minimum and then will vanish as you continue to walk away.

In this paper example, Hume is suggesting a way for someone to experience this minimal colored point. He is not commenting on the objective reality of the paper or of our ability to accurately perceive this objective reality. He is just providing an experiment we can perform so that we can experience a certain type of impression.

Similarly, in the quoted passage, Hume is merely explaining how we experience impressions, and form ideas about objects in the world. He is not commenting on the objective reality of these objects, of their persistence when they are not being perceived, or of any other “realistic” aspects of the objects in question. He is not, as Kemp Smith suggests, making a distinction “between space... as apprehended by us, and space as independently real.” Hume is commenting here on space as apprehended by us, and the inferences we make based on that apprehension.

Hume’s point is that when we view an object with the unaided eye, our complex impression and our complex idea of the appearance of that object is ultimately divisible

to a finite number of points. Using a microscope or telescope makes visible to us details of an object that were not otherwise visible, but still we are perceiving a complex impression and having a complex idea which is divisible into a finite number of parts. In no circumstance does our perception or conception of space extend to an infinite number of parts. There is always a minimum.

Our view of something at 1x or 10x or 100x magnification does not make it any more “real,” and even if we magnify something, our perceptions still reach a minimum. Whether we experience something magnified or not, we still experience space as divided into discrete points. No matter how great the magnification, we cannot have an impression of infinitely divisible space, and so cannot have such an idea either.

All of these perceptions, both aided and unaided, are taking place within our world of experience. None is more “real” than another, and all are perceived within the framework of our ideas of space and time.

It is also important to note that this passage appears very early in the *Treatise*, long before Hume introduces his more skeptical arguments regarding causality, the persistence of unobserved objects, or personal identity. Rhetorically, it makes sense for Hume to make his points early on in terms the reader is likely to easily understand, since he hasn't yet fully laid the groundwork for his more radical skeptical arguments.

Kemp Smith's second example of Hume's “naïve realism” relates to time:

It has been remarked by a great philosopher, that our perceptions have certain bounds in this particular, which are fixed by the original nature and constitution of the mind, and beyond which no influence of external objects on the senses is ever able to hasten or retard our thought. If you wheel about a burning coal with rapidity, it will present to the senses an image of a circle of fire; nor will there seem to be any interval of time betwixt its revolutions; meerly because it is impossible for our perceptions to succeed each other with the same rapidity, that motion may be communicated to external objects. Wherever we have no successive perceptions, we have no notion of time, even though there be a real succession in the objects. (T 1.2.3.7)

Once again, Kemp Smith doesn't provide a full exegesis of this passage. But Hume's use of the phrase "real succession in the objects" certainly offers the potential for a realist interpretation. Such an interpretation might look like this: that our limited minds and perceptual apparatus perceive time in a certain way, but through scientific investigation and rational inference, we can discover the true objective reality of time as it exists external to us.

The mistake here is in overinterpreting the term "real." Hume here is just suggesting that we can rationally infer that the blurred circle of fire we see is caused by a limit to our perceptual apparatus. The lump of coal does not morph into a ring of coal and then morph back into a single piece of coal when it comes to rest. Even though it "looks" that way, we can infer, through normal causal reasoning, that something like that isn't taking place. Further scientific investigations of our experience would likely justify these inferences.

However, the peculiarities of our perception of time, within our overall experience of time, do not tell us anything about the objective reality of time. Hume is



not making a grand claim about some distinct, “real” time which we somehow are unable to perceive in this case. He is commenting here on our perceptions within the normal framework of our idea of time. As I will explain in more detail later, Hume doesn’t offer us a means to discuss time or space outside of our own conception of them. Time and space *are* our ideas of time and space, and Hume doesn’t even offer us the option of speculating beyond that into some supposed objective reality.

### **Kemp Smith on the Infinite Divisibility of Space**

After dealing with these issues of space and time in general, Kemp Smith in Appendix A takes up directly the topic of the infinite divisibility of space. He summarizes Hume’s many arguments, but for our purposes, it makes sense to focus on a key paragraph:

Wherever ideas are adequate representations of objects, the relations, contradictions and agreements of the ideas are all applicable to the objects; and this we may in general observe to be the foundation of all human knowledge. But our ideas are adequate representations of the most minute parts of extension; and through whatever divisions and subdivisions we may suppose these parts to be arrived at, they can never become inferior to some ideas, which we form. The plain consequence is, that whatever appears impossible and contradictory upon the comparison of these ideas, must be really impossible and contradictory, without any farther excuse or evasion. (T 1.2.2.1)

Kemp Smith writes that this continues “the explicitly realistic attitude” which Hume demonstrated in his earlier discussion of space and time. (Kemp Smith 293). He doesn’t provide a detailed explanation for this remark, but the language of this passage offers an obvious realist interpretation.

The realist interpretation would go something like this: Hume is saying that our ideas *are* adequate representations of the most minute parts of extension. They are accurate representations, and so when we reason about them, our reasonings correctly correspond to extension itself. That's why Hume's proofs against the infinite divisibility of space are absolutely certain and indisputable. Our ideas represent how extension (and space) really are constituted in the external world, and so our reasonings concerning space can reliably tell us about that external reality.

If we are to take this realist reading seriously, the question immediately arises, why is Hume so certain that our ideas of space are adequate representations of actual space in the external world? How can Hume be so sure of their agreement?

Of course, nowhere does Hume provide that answer, because he doesn't need to verify anything about an objective, external reality. Once he has traced the source of our ideas for space, which he does quite clearly earlier in the chapter, he's explained everything he needs to explain. Our ideas derive from our impressions, and all of our reasonings and imaginings pertain to those ideas.

For Hume, our idea of space is an adequate representation of space because, ultimately, that *is* space. The only thing we encounter in our experience are impressions of colored points arranged in a certain manner. From that, our idea of space derives, and based on that, we can reason productively about space. We do not have impressions of infinitely divisible colored points, and so of course our idea of space does not correspond

to that. That's why, if we try to reason about space assuming it to be infinitely divisible, we will ultimately run into contradictions.

This principle and argument structure tie in with the overall aim of the *Treatise*. Hume's goal is to solve many outstanding issues in philosophy by first clarifying the nature of human understanding. As he states in the Introduction, he hopes for great improvements in the sciences of mathematics, natural philosophy, and natural religion by "explain[ing] the nature of the ideas we employ, and of the operations we perform in our reasonings" (T 1.I.4). He aims to resolve philosophical conundrums by examining our ideas which form the basis of the question or confusion.

For Hume, examining our ideas and determining their derivation and constitution are essential first steps in the further progress of both philosophy and scientific investigation. If we wish to study space and time without falling into error, we must first study ourselves. There is no objective reality to study independent of our ideas of reality; our ideas of space and time must form the basis for any fruitful study of space and time. That, after all, is why it is a treatise of "Human Nature."

### **Yenter's Explanation of Hume's Insistence on Adequacy**

Timothy Yenter addresses directly this issue of the "adequacy" of our idea of space. He provides clarification as to why Hume is so insistent on claiming that our idea of space *does* adequately represent space. The Adequacy Criterion, as Yenter calls it, is an important one for Hume and a crucial part of Hume's argument against the infinite

divisibility of space. As explored above, it also provides an interpretive difficulty, since it is amenable to a realist interpretation. So any insight into Hume's motivations for this insistence will help us to better interpret both the criterion and the *Treatise* as a whole.

Yenter suggests that Hume requires all demonstrations to employ ideas that are "adequate" (Yenter 46). Yenter explains that "adequate" ideas must be "comprehensive" (everything true of the object is represented accurately by the idea) and "sound" (every way in which the idea represents the object does accurately represent the object). Only ideas of this type can be used in a demonstration.

Yenter provides historical context, suggesting that part of Hume's motivation for arguing against the infinite divisibility of space is to undermine the "a priori" arguments for the existence of God which were current during Hume's time (Yenter 71). These arguments relied on inadequate ideas of infinity. For instance, Samuel Clarke suggested that such difficulties can be overcome by the totality of the argument (Yenter 66). However, Hume makes the point that no demonstration can include unresolved difficulties. In fact, according to Hume, inadequate ideas cannot be used in a successful demonstration (Yenter 67).

This insistence on the adequacy of our idea of space also serves the purpose of limiting our speculations about space. Since our ideas are adequate representations of space, we are able to resolve issues surrounding space simply by examining our ideas. This constrains the inquiry within our perceptual and cognitive apparatuses. After all, the

idea of space first comes from our human perceptions and exists within our human imagination. If we are able to neatly resolve questions concerning space within this conceptual framework, then using aspects of space as parts of grand metaphysical proofs seems implausibly far-reaching.

Grounding our ideas in the sense impressions from which they arise limits their power. It limits the speculations they can generate. If when we talk about our idea of space we are only talking about something that represents our perception of colored points, that strictly limits the scope of that idea. We cannot use it in proofs or other speculations to settle matters far beyond our empirical experience.

### **Limitations of Our Minds Are Limitations of the World**

A key argument Hume makes against the infinite divisibility of space relies on the limitations of human cognition. Not only does our idea of space derive from our impressions of a finite number of colored points, we could not possibly have an impression or an idea of infinitely divisible space. Our minds are simply unable to comprehend infinite quantities. Here I will summarize the argument Hume makes on this issue.

To summarize the argument:

1. "The capacity of the mind is limited."
2. Therefore, "the mind can never have a full and adequate conception of infinity." (1)

3. “Whatever is capable of being divided *in infinitum*, must consist of an infinite number of parts.”

4. “It is impossible to set any bounds to the number of parts, without setting bounds at the same time to the division”

5. “The idea, which we form of any finite quality is not infinitely divisible” (2, 3, 4)

In other words, everyone agrees that the mind is limited. Since the mind is limited (and since infinity is limitless), the mind cannot form an adequate idea of infinity. For something to be infinitely divisible, it would have to be comprised of an infinite number of parts. And you cannot limit the number of parts without also limiting its divisibility. Therefore, our limited mind cannot conceive of an infinite number of parts, and so no idea of a finite quality can be infinitely divisible.

This is quite a radical claim, and it is almost impossible to reconcile with the sort of naïve realism that Kemp Smith is attempting to attribute to Hume. Hume is arguing that space cannot be infinitely divisible because our minds cannot conceive of such a state of affairs.

If Hume were espousing a realist perspective, why would he expect that the objective external world would necessarily conform to the limitations of our minds? Even if he held that view, he would need to explain the source of his surety on this issue. Our minds could be finite, but space itself could be infinitely divisible. One can imagine such arguments, of why the real world and our minds are so neatly aligned, but no such

arguments are provided. Hume just takes it as a given that our ideas about space and space itself are perfectly aligned.

This alignment gives rise to the interpretation of Hume's "naïve realism." But the alignment comes not from some realist perspective; it comes from Hume's strongly skeptical stance. When we speak or think about space and time we could only possibly be talking about our ideas of space and time, and those are just directly copied from our sense perceptions. Hume never actually suggests that our sense somehow provide us with accurate representations of some objective reality.

### **Further Evidence from Hume's Argument Against a Vacuum**

After offering the arguments against the infinite divisibility of space, Hume turns his attention to the question of whether vacuums can exist. He uses a very similar method to demonstrate the impossibility of a vacuum as he uses to show that space is not infinitely divisible. He examines our idea of space, based on the initial impressions from which it is derived. He then shows how the proposed idea (a vacuum) is impossible, based on the analysis of our idea of space. The argument is very straightforward:

1. "The idea of space or extension is nothing but the idea of visible or tangible points distributed in a certain order."
2. "We can form no idea of a vacuum, or space, where there is nothing visible or tangible." (1)
3. If we cannot form an idea of something, then it is not possible.

4. A vacuum is impossible. (2, 3)

5. There are no vacuums. (4)

In other words, our idea of space comes from our impressions of visible or tangible points (sensible minima). A vacuum purports to be space completely devoid of these points. However, since our idea of space derives from perceiving such points, we cannot imagine one without the other. Since we cannot imagine a vacuum, then it's not possible. If something isn't possible, then it cannot and does not exist.

Hume answers several objections to this argument. The first objection is most relevant to our interests here. The objection is that people have been arguing and debating about vacuums for a long time. If they did not have an idea of vacuums, what were they arguing about? Hume explains that they are simply confusing similar phenomena for a vacuum, but on careful inspection of their ideas, they would see that they don't actually have an idea of space where nothing is visible or tangible.

It is difficult to imagine how any type of realist interpretation of Hume could coexist with this kind of argument. Such a realist worldview would not allow for such a simple solution to the question of the existence or nonexistence of vacuums. The label "realist" suggests that there is a world independent of human experience about which we can somehow gain knowledge. Things are the way they are independently of us, and there must be some method for us to learn about this objective reality.



If space were something external to us and open to investigation by us, then mere examination of our idea of space wouldn't suffice to determine its nature. It wouldn't allow us to decide the matter one way or another. Even if, as Hume suggests, vacuums are inconceivable to us, that wouldn't necessarily mean that they could not exist.

Hume uses this method throughout the *Treatise*. Hume uses the same type of argument to explain the ultimate nature of causation. Rather than providing an explanation external to us, he looks instead to the internal source of our idea of causation. That is a sufficient explanation for Hume, and his investigation stops there. As he explains at the conclusion of his discussion about causation.

Hume explains that causation “lies merely in ourselves.” It is nothing but a “determination of the mind” that we acquire by custom. The discovery cuts off any hope of further investigations into the nature of causality. After all, “when we say we desire to know the ultimate and operating principle, as something, which resides in the external object, we either contradict ourselves, or talk without a meaning” (T 1.4.7.5).

The arguments against the infinite divisibility of space and those against a vacuum form the groundwork for this later discussion of causality. Just as we cannot talk about causation as “residing in the external object,” so too we cannot talk about space as something external to us. All we can reason about is the idea of space with its humble origins.

### **Buckle's Attempt to Reconcile Hume's Skepticism with a "Materialist" Perspective**

In his paper "Hume's Skeptical Materialism," Stephen Buckle suggests that Hume is a materialist who holds that the external world is real and produces the impressions we experience. However, since we only have access to these impressions, we are never able to know fully that world. In trying to understand the world, "the perceptions with which we must deal set a limit to our knowledge, because they cannot get us in touch with the real world that causes them" (Buckle 556).

He argues that the limitations of our minds limit the theories our minds can produce. So, he suggests, Hume is arguing that since we cannot imagine a vacuum or infinite divisible space, we cannot entertain such a theory to describe "the ultimate nature of reality." That "ultimate reality" is beyond our grasp because it lies beyond our perceptions and the ideas we derive from them. But it's out there.

However, Hume is actually quite clear on this point: "Our ideas **are** adequate representations of the most minute parts of extension" [emphasis added]. He doesn't say that our ideas are adequate representations of our phenomenal experience of extension. He also doesn't say that space, as we experience it, cannot be infinitely divisible, even though in "reality" it might be. His arguments are very clear and without equivocation: space is not infinitely divisible. In the same vein, he doesn't argue that vacuums might exist but that we cannot perceive them; he argues that vacuums are impossible.

Hume is able to come to these absolutely clear conclusions because he believes that he has traced the source of the idea of space. Our idea of space cannot be infinitely divisible or contain a vacuum, so space is not that way.

If we are to accept Yenter's explanation of Hume's motivation for insisting on the adequacy of our ideas of space and time, then that would provide even further evidence against Buckle's view. Buckle is suggesting that our theories of space and time are limited by our visual imagination; we cannot form a theory of infinitely divisible space because we cannot imagine such a thing.

According to Yenter, however, this is precisely the position Hume is trying to combat with his arguments. Hume's insistence on the adequacy of our idea of space is intended to quash theories of the infinite, specifically ones used in the "a priori" arguments for the existence of God.

Hume makes this point again clearly at the end of his discussion of space and time:

Now since nothing is ever present to the mind but perceptions, and since all ideas are derived from something antecedently present to the mind; it follows, that it is impossible for us so much as to conceive or form an idea of any thing specifically different from ideas and impressions. Let us fix our attention out of ourselves as much as possible: Let us chase our imagination to the heavens, or to the utmost limits of the universe; we never really advance a step beyond ourselves, nor can conceive any kind of existence, but those perceptions, which have appeared in that narrow compass. This is the universe of the imagination, nor have we any idea but what is there produced. (T 1.2.6.8)

In other words, the totality of our experience is limited to our perceptions and the ideas derived from them. This is the "universe of the imagination"; we cannot even

conceive of anything beyond that universe. Hume is not positing or making claims about a reality that lies somehow beyond our human experience. There would be no reason to, since it is irrelevant to his investigation of human knowledge.

Attempts to pigeonhole Hume as a “realist” or a “materialist” go beyond the clear meaning and intent of the *Treatise*. Hume is trying to constrain our speculations, to inject a healthy skepticism into our pursuit of knowledge. He is explicitly trying to limit our investigations to our ideas and impressions. They are the limits on human knowledge and in setting these clear limits, Hume is aiming to improve our ability to separate legitimate knowledge from fantastic speculation.

### **Wilson’s “Critical Realism”**

Wilson argues that even though Hume declares that “the capacity of the mind is limited, and can never attain a full and adequate conception of infinity, Hume has no difficulty with the concept of infinity. Instead, Hume is only rejecting the notion that space is infinitely divisible. Hume is not rejecting the concept of infinite extension; instead he is only rejecting the idea that a finite extension can be divided infinitely (Wilson 272).

Wilson suggests that Hume argued for a conclusion that “affirmed the reality of space,” in contrast to Bayle, who denied the infinite divisibility of space and concluded that space is ideal, not real (Wilson 273). In fact, Wilson asserts for Hume, extension is real, since Hume claims it is certain we have a non-contradictory idea of extension, and

so extension can indeed exist. He is not denying extension, as Bayle does -- Hume is just denying its infinite divisibility. Hume is “defending the reality of ordinary extension” by resolving any possible contradictions regarding the divisibility of space (Wilson 276).

Though it is true that Hume is determined to resolve any apparent contradictions in our idea of extension, there really isn't anything to suggest that he is doing so in order to establish the “reality” of space. Hume insists repeatedly that we are limited in our experience to our impressions and the ideas that derive from them. He does not give us an ontological or epistemological framework for leaping from those impressions and ideas to another reality underlying them.

In so limiting human knowledge to our impressions and ideas, Hume is doing two things. First of all, he is providing a sound foundation for scientific investigation. Using later terminology, he is limiting science to the empirical study of the world. He is also limiting our philosophical speculations about the world. We should not even speculate about anything beyond our impressions and ideas; we can know nothing about them, and by limiting ourselves, we also limit the error into which we can fall.

These limitations are what allow him to make such certain conclusions that space is not infinitely divisible and vacuums cannot exist. The limitations pretty much make any discussion of the “reality” of extension meaningless. Our imagination is limited to our ideas, and the “copy principle” severely circumscribes the nature of those ideas. It is

when we try to get beyond those ideas, to talk about some reality underlying them, that we fall into error and contradiction.

### **Hume's Skepticism As Expressed in the *Treatise***

In this game of labels, I am suggesting an emphasis on Hume's skepticism. It is a label he applies to himself, and it encompasses many aspects of his philosophy.

Hume himself uses the term "skepticism" often in Book 1 of the *Treatise* and deals directly with the question of how to incorporate a skeptical perspective both into philosophy and in daily life. He's unequivocal about taking a "skeptical" stance, but untangling exactly what that means poses a challenge, especially since it seems to take on a different significance in different contexts.

For example, in the Appendix, he asks us to allow him to "plead the privilege of a sceptic and confess, that this difficulty is too hard for my understanding" (T App.21). He is here referring to his inability to completely solve the issue of personal identity, while he leaves open the possibility of others, or himself at a later date, coming to a satisfactory resolution. This is a type of skepticism where he is allowing himself a lack of surety on a particular issue.

Hume, however, does not take this type of skeptical stance in regards to the infinite divisibility of space. He's actually very emphatic about how conclusive and irrefutable his arguments are on this issue. This surety, though, is actually just another aspect of Hume's skepticism. Hume insists that we are able to examine the contents of our own minds, but beyond that he maintains a skeptical distance. Questions like the

infinite divisibility of space or the existence of vacuums, which can be resolved through the examination of our ideas, can be resolved conclusively.

Book 1, Part 2, “Of the Ideas of Space and Time,” begins with a discussion of the limitations of the human mind. It ends with a section addressing “the idea of existence, and of external existence.” Hume argues that all of our idea of a thing’s existence cannot be separate from our idea of the thing. There is no distinct impression for “existence,” and so there is no distinct idea.

As Hume then explains, “nothing is ever really present with the mind but its perceptions or impressions and ideas, and that external objects become known to us only by those perceptions they occasion” (T 1.2.6.7). Here, perhaps most clearly of all, he is putting an unpassable limit on human knowledge. Labels such as “realism” or “materialism” suggest that we are in an epistemological position to get beyond our impressions and ideas. They suggest that there is an external reality, separate from our mere perceptions of that reality, of which we can somehow gain knowledge.

However, Hume isn’t giving us the epistemological tools to learn about any such reality. The method of the *Treatise* is quite the opposite. He’s providing us with tools to examine our own ideas, understanding their source and composition. Those tools are enough to solve age-old philosophical riddles like the infinite divisibility of space and the existence of vacuums.

Reading the *Treatise* on its own terms leaves us without answers to many questions we might pose about the external world. That's the nature of skepticism, and that skepticism is Hume's great lesson and gift to us.



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