

ON HUME'S SPACE AND TIME

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There is no other notion in philosophy which is seen more clearly, and at the same time is so laden with confusion, than that of space and time. The reason for this problem is voiced by different philosophers in different ways. The subjective nature of analyses is most likely to blame, since a universal agreement upon the ideas of space and time has not yet been reached. My position is simply that the mind, when passive, has no qualms with space and time themselves, nor is it concerned with their principles. It is only when our passions are ignited and our judgment is utilized, i.e. when we begin to actively *think* about space and time, that the notion becomes confounded. Any further digression into the semantics of the issue by making an attempt to give a final explanation of the ideas of space and time will always lead to a dead end. This is due to the fact that space and time are ideas of an infinite nature and can never be distinctly visited via the use of the human mind since it is itself of a finite nature. My hope is only that the reader will agree that this predicament is well worth the exploration.

The intent of this project will be to clear up any confusion of the problem via an augmentation of David Hume's *A Treatise of Human Nature*. This will serve as a helpful analysis of the principles set forth by Hume and not only will give a practical understanding of the latter's views, but also will elucidate my own notions of space and time. The sections covered will be 1.2.1 - 1.2.3 and 1.2.5; which represent Hume's core analysis of the ideas of space and time. As a tacit source of reference, I will include some theories offered by Leucippus and Democritus of Abdera, who are the earliest known atomists and the first to give an accurate account of matter and extension¹.

I: Infinite divisibility in relation to the ideas of space and time

Hume begins his exposition in 1.2.1 with an account of the principle of infinite divisibility. He does this both to provide pertinent information in terms of, and to set a tempered platform for his further explanation of the ideas of space and time. The conclusion entailed by infinite divisibility, by Hume's account, is that if something is compounded of an infinite number of parts, it must retain the ability to be divided infinitely. Conversely, the idea we form of anything finite has the characteristic of being able to be divided into terminally finite simple parts. To give a special example, think of an entity as being composed of an infinite number of parts. Must not it then be said to be of infinite extension? In a word, necessarily. It is a shared zenith of necessity that anything of finite extension may only be divided into perfectly simple and indivisible parts. An idea compounded of a finite number of parts may however be divisible; "by proper distinctions and separations we may run up this idea into inferior ones, which will be perfectly simple and indivisible."² Hume is here alluding to his position that the mind is not of an infinite capacity.

So with ideas being the occupants of the mind, we can conceptually postulate the idea of arriving at the end of each idea's division. This is the claim that the imagination reaches a minimum at which any attempt at a further division of the idea brought before it could only result in its total obliteration.

An obvious objection to this stance may go as follows: though we may not be able to directly perceive any further division of a perfectly divisible simple, we may certainly conceive of numerous further divisions, if only through the use of pure mathematics. This point could be further solidified by our present knowledge of sub-atomic happenings via the use of advanced visualization techniques. Hume may agree himself with the latter, but only if we were to have an immediate experience of such happenings. In a way, observing and accounting for the further divisions of previously perceived simples is a way of redefining the minima, but this would not be an entirely accurate account³.

Two things are important to remember. Firstly, by Hume's account, there is always the indivisible simple that, conjoined with others, makes up ideas of a complex nature, and any further division will be of no use to our senses. Secondly, even in an attempt to amplify our senses, as it were, by using a microscope, telescope, or the like, there will still be, at the base of an idea, the same indivisible simples. This is true whether the simples are neutrons and electrons or beach balls and dogs. You may of course conceive of a separation of the dog's parts, but never can you actually have an immediate experience of a living dog existing in such a way. This is the work of the imagination and never the senses, which is conveniently what leads us to the next phase of our inquiry.

Before any disagreement amongst philosophers in reference to infinite divisibility can be properly analyzed, I must explain another relevant principle put forth by Hume. He states that whatever may be differentiated from anything else is distinguishable and further, anything that is distinguishable may be separated by the imagination. This is Hume's separability principle. It essentially states that any idea that comes before the mind that is different from another is distinguishable and therefore separable into indivisible parts via use of the imagination. This principle is foundational for Hume in that it gives justifiable truth to his supposition that the mind is finite and therefore the ideas therein are *indivisible minima*.⁴ Some may disagree with Hume by saying that there is no way to prove that the mind is finite and therefore could be in accord with the supposition that the mind could or could not be inherently infinite complex by virtue of being composed by an infinite number of parts. But on the same head, this objector must then admit that she is tasked with providing conclusive proof to offer for her claim of the converse, (whatever it may be). Since it is not the purpose of this essay to get entwined in epistemological circles, we will give this subject no further attention.

Hume gives an example that may, for his critics, seem more plausible and give anyone offering objections something more to consider. He discusses the divisibility of a grain of sand. He allows that one can have a conceptual idea of the infinite varying numbers

that could be used to define infinite divisions of a grain of sand, and even that one could have an idea of the different spatial proportions thereof.⁵ An example of the latter would be a person having an immediate experience of a divided grain of sand seen under a microscope. Then, simply through use of her memory and imagination, duplicate (in her mind) a reflection of the original sensation in as much excess as could be done by infinitely dividing fractions or decimals. But the images of these infinite divisions that are formed in the mind and that are identical to the impression of the original grain can only be called upon by an impression of reflection. By Hume's account, such reflections can, in no way, replicate in force and vivacity, the immediate impression of sensation. Since we have never had an immediate perception of such divisions of a twentieth, much less a hundredth and certainly not a thousandth of a grain of sand (by the naked eye), we cannot give these ideas any empirical value. For empirical value to be attached to any impression, it must be one of immediacy. Even the most powerful microscope would fail in displaying an infinite division of any body to our senses.

We must not fail to remember the allowance given by Hume at the beginning of this example. "I have a distinct idea of these numbers and their different proportions."⁶ What is meant by this is that the principle of infinite divisibility does have one safe haven in which it can be comfortable in its justifiable truth. That place is to be mathematics. The proof of this can be found by simply dividing the half of any number on a calculator over and over successively. I am not sure how far modern technology has advanced in computational machines of this nature in having the ability to complete this task in any extended sense. What matters for my discussion is that we can conceive of any number, (which is an abstract object, not a physical one) being infinitely divided into an infinite number of fractions.⁷ An abstract object may not be perceived through the senses as in the case of a physical object. It would be easy for someone to say, "I am looking at a tree," and as long as the person was of sound mind, not under the influence of any hallucinogen, and was in fact looking at a tree, we could allow her

declaration to be truthful. But no one could ever declare to another, or even herself that she is looking at four. More importantly, she could never give an appropriate description since four is a concept, not an object. Four, or any other abstract object for that matter, can only be described by objects, (i.e. 4 or if you like, f-o-u-r), and cannot not be perceived in and of itself as an object. To attach any objection to this notion would surely be a negation of the apodictic certainty of mathematics on the whole, and this I am sure, would be viewed as a thorny contradiction.

Hume concludes the 'grain of sand' example by showing that the idea of a grain of sand is in no way able to be distinguished. Nor is it able to be separated into any number whether it be a hundredth, thousandth, or an infinite number of inferior ideas.⁸ For this to be possible, the mind itself must retain the requisite qualification of being composed of an infinite number of parts. So though we may be able to conceive of such divisions and even accurately do the math, it would be a fool's errand. If something is not immediately perceptible to the senses we can have no immediate impression of it and thus no subsequent accurate reflection of it.

Whether divisions of ideas are made finitely or infinitely, there always seems to be some degree of unity amongst them. If you divide a yardstick into 36 one-inch-long segments, giving you 36 pieces rather than one, they could still be said to be *unites* of the formerly solid yardstick. Imagine one of the pieces gets kicked under a chair and is found a week later by your spouse and she asks, "What is this?" You would surely reply, "A piece of a yardstick." You wouldn't say it was a piece of rope or a piece of paper. Hume's version of this notion is that existence belongs to unity, and the former is never applicable to quantity, (or number).⁹ Existence is, however, applicable to the *unites* that the number is composed of. For example, the Red Sox can only be said to be a team if it is considered that they are made up of some number of players. That is, it would be nonsensical to postulate the existence of any number while denying the existence of the *unites* it is composed of, thus the Red Sox could never exist as a team, if the members were not recognized as the parts (*unites*) of the team. Hume's ultimate

conclusion of unity is that the term itself is merely a fictitious denomination of which the mind is capable of applying to any number of objects it may collect together.

II: Of time

Hume's initial elucidation of time states that the concept itself is nothing more than the succession of our perceptions.¹⁰ The property that constitutes the essence of time is that each of its parts (or moments) always either proceed or succeed one another. So, since it is easily allowed that these moments always appear as contiguous, they can never be understood as coexistent in any fashion.¹¹ Hume uses his account of infinite divisibility to show that time is composed of indivisible moments. This is the same line of reasoning he used in reference to the idea of extension that was given in the 'grain of sand' example. He defends his claim by implying a contradiction in the idea of time being a composed of infinitely divisible moments. If this were the case, "there would be an infinite number of co-existent moments, or parts of time; which I believe will be allow'd to be an arrant contradiction."¹²

How can we be convinced of this? Is it not possible to imagine some fictitious elaboration of our temporal relations, even if it expressed nothing more than the devil's advocate view via the employment of a relevant thought experiment? If so, then we will do just that. We attempt to discover some situation in which moments, or parts of time could be coexistent.

Imagine something simple like a wine glass. Now imagine that said glass is situated on the very edge of a table by a man just as he leaves the room, (t1). Shortly thereafter, the man's cat leaps onto the table, (t2) thus shaking it slightly causing the glass to fall, (t3). Upon hearing the noise, (t4) the man rushes back into the room, (t5) only to find his favorite wine glass broken, (t6) and his cat with the look of guilt in her eyes, (t7). Here we have nothing more than a simple sequence of events that occurs both temporally and spatially. For now we will focus on the temporal aspects exclusively. So, the question at hand is, can there be any instance of two or more times

being coexistent with each other as opposed to their necessary contiguous existence?

The only way to conceive of t1 and t2 coexisting is to further divide each of these moments into diminished fractions of time that when divided would appear as coexistent wholes, and not halves. We could, I suppose, divide the 1.5 seconds that expired during the act of the cat jumping onto the table into tenths of a second. So then we could conceive of 15 increments of time as opposed to 1.5. Even though a further division has been made, thus *redefining* the unites, the span of time remains the same. Further divisions do nothing to prove the coexistence of moments for two reasons. Firstly, no matter how many times one divides a single unit of time, the unites thereof will always add up to the total of the original unit. This follows strictly on the path that Hume set forth of unity. To contradict this would be to say that when I divide an orange into two halves, I now have two oranges. Secondly, even when we consider the vast multiplicity of divisions of a single moment in time, the sequential arrangement of time still remains. Whether we decide to count an hour by minutes, seconds, or any other means of division, the distribution that we ascribe will still remain successive.

III: Of space

There is a second half to Hume's argument that consists of the idea of space. He defines space concisely as the various dispositions of visible and tangible objects.¹³ In other words, the idea of space is only perceptible by means of sight and tactile reference. Furthermore, Hume's statement that, "we therefore have no idea of space or extension, but when we regard an object either of our sight or feeling"¹⁴ simply means that space is exclusively recognized by the distance or closeness of objects in our visual or tactile fields. To solidify this argument one must only consider the perceptions of a blind man. When he meets someone for the first time, he may request that he be allowed to touch their face in order to gain an idea of what they look like. His lack of sight creates a stronger tactile sense of space since that is the only faculty he has to

perceive the people he meets. The same line of reasoning would enact itself if he were to move into a new house. He would have to, by touch, survey all of its rooms in detail as well as the decided positioning of furniture so as to avoid running into or tripping over things. And further, he would be wise to keep everything in his new home in the same layout with little variation so he wouldn't have to continually re-learn where everything was. The point of this example is to clarify the concept that sight and touch, (hearing, tasting, and olfactory senses could be allowed as well), are the only way ways that people perceive things empirically. These are the faculties that give us our immediate impressions.

Hume considers the idea of the existence of a vacuum, or void in which nothing is visible or tangible. What is empty space? The existence of a void is absolutely necessary in order to understand a plenum, or any solid matter. Without a void, we could not conceive of a plenum and without the latter we could never conceive of the former. Imagine a dog in a shed. Whatever amount of space the dog fills during the time he is in the shed is the absolute negation of the open space that surrounds him. The only thing that defines the negation of anything is its converse. Plenum is the opposite of void. This I will call my Principle of Opposites, namely that if something (x) has an apparent opposite (y) then it (x) can only be described by it (y). With this in mind, I must side with Hume in that a void can, and must, exist where there is no plenum. This is true especially when we consider his example of the space between a chamber's walls. Hume holds that the roof and floor of the chamber separate the four walls and that the latter separate the former. These six boundaries can only imply a void of extension and matter in between them¹⁵.

IV: The coexistence of space and time

Consider the idea of the coexistence of space and time. This may seem to be contradictory to the 'floating man' example¹⁶, but it is only due to the impossibility of the case itself. Hume feels strongly that the idea of space cannot exist with out that of time, "nor is it

possible for time alone ever to make its appearance, or be taken notice of by the mind.”¹⁷ For how could we have an idea of time without perceiving objects that constitute its succession? Even more impossible would be the existence of space with out that of time since we could never see objects interacting with other objects without time present to structure the objects’ motions in a contiguous manner.

One could object, however, that it could be possible to perceive a succession of sensations of reflection. Imagine someone simply thinking of what one did yesterday. Whether it was waking up, grocery shopping, or going to a movie, it may be said that a person would be experiencing a succession of impressions that have no spatial location whatsoever. But what must be kept in mind is that every reflection and or memory is simply a recollection of something that was not only spatially located somewhere, but was also temporally sequential. For example, I see a car drive down the street from point A to point B. The idea of space is necessary to realize the distance that constitutes the two points in which the car may be at or in between. And more importantly, time is necessary since we could never imagine the car traveling forward from point B to point A, only the converse is sensible to the mind. So even if months passed from the actual occasion and a person were to call upon this impression of reflection and mix and match the moments thereof, they would only be inaccurately reconfiguring the moments via use of the imagination. They could never have an immediate experience of something in this mixed up manner.

V: Conclusion

As I mentioned in the beginning of this enquiry, I hold that the only method that we may implement to erase confusion concerning the ideas of space and time is simply to give none of the mind’s attention to the notions themselves. How can this be possible? Prima facie, this line seems so fallacious and contradictory that to even consider it would be completely impractical. But if one considers that space and time are simply the framework of, or

perhaps the mechanisms that structure the way we perceive and recollect our impressions in the mind, my point gains legitimacy. This is the theory in which I hold to be the most sensible since space and time are given to us a priori, but are manifested in experience and experience alone. Space and time may be infinitely existent, but the only recourse we have to understand what space and time do is through experience (with a finite mind).

Immanuel Kant suggests that a priori cognitions such as space and time are stimulated by experience but never satisfied by it.¹⁸ The reason this is relevant to the current topic of discussion is that we can never have any idea of space and time, but rather that it is what structures all of our thoughts and ideas that are originally initiated by experience. Kant holds that our minds are divided into two sections; one of outer sense (sensibility) and the other of inner sense (understanding). Stimuli are given to the sensibility via the sense organs and synthesized in the understanding via subsumption under innate concepts such as unity, reality, cause, and existence. The outer sense is spatial since what it deals with is the spatial location of what it perceives and the inner sense is temporal since what it deals with is perceptions cognized in contiguous relation to each other. Kant would say that space and time are the a priori conditions of our minds. Though Kant's subsuming of perceptions under concepts may not be in complete accord with Hume's ideas of space and time, it is important to visit another philosopher's relevant theories to broaden the scope of the project.

The question now is: could Hume himself be said to be in agreement with my position? Consider this statement: "nor is it possible for time alone ever to make its appearance, or *be taken notice of* by the mind."¹⁹ He does not give validity to the notion that if five notes are played on a flute, the span of time in which they successively occur is a sixth impression. Rather, Hume sees time not as an impression at all, and thus not an idea; I would say that time structures our impression and ideas. As for space, we have no direct impression of it. We can only perceive what does or doesn't occupy it.

We can have no idea of space and time in and of themselves,

though we may (and do) have impressions that are given from space and time. This is because space and time should be understood as the structure or framework of our minds' workings with perceptions that are immediately perceived via the senses and then subsequently transformed into impressions of reflection for later use only.

Endnotes

- 1 *The First Philosophers*, translated by Robin Waterfield, 165.
- 2 David Hume, *A Treatise of Human Nature*, 23.
- 3 This point will be revisited shortly.
- 4 See Berkeley, *Principles of Human Knowledge: Three Dialogues*.
- 5 David Hume, *A Treatise of Human Nature*, 23.
- 6 Ibid.
- 7 Ibid., 25.
- 8 Ibid., 23.
- 9 Ibid., 25.
- 10 Ibid., 28.
- 11 Ibid., 26.
- 12 Ibid.
- 13 Ibid., 28.
- 14 Ibid.
- 15 Ibid., 41.
- 16 I believe that Hume was probably influenced by the ideas set forth by the early atomists, Leucippus and Democritus. They held that the universe is made up of atoms, and the lack thereof that constitute the plenum and the void. "Leucippus and his companion Democritus say that the elements are the full and the void, by which they mean what-is and what-is-not" (Waterfield). They too felt that plenum and void were necessarily codependent. To take this idea one step further we can consider Hume's floating man example. In a thought experiment, he alludes to a man that is suspended in the air and moving to and fro by means of some 'invisible power'. The entire time he is floating about, he has no idea of extension. He does however retain the idea of time since, as he floats along moving his appendages, there is an idea of

contiguous motion. In this instance the idea of time does not necessitate the idea of space for the floating man. But this is, of course, not a plausible scenario.

17 Ibid., 28.

18 Immanuel Kant, *The Critique of Pure Reason*, 127 A1.

19 Ibid.

Works Cited

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