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Space and Time in *The Incoherence*

**Introduction**

Our entire conscious experience is based upon two things: space and time. Everything we think about uses these two concepts as a substrate. Most people think that these two entities are fundamentally different. We cannot convert time into space or vice versa. In everyday life this duality is rarely questioned. Yet we often *do* treat space and time similarly. We travel *through* both of them; we think of moving *forward* or *backward* in time, despite the fact that these are spatial distinctions. Timelines are a perfect example of how space and time each support our understanding of the other.

Al-Ghazali, one of the most influential Muslim philosophers, deals with this distinction in his *The Incoherence of the Philosophers*. He tries to use space and time analogously to disprove the philosopher’s theory of infinite time. In *The Incoherence of the Incoherence*, Averroes (perhaps *the* most important Muslim philosopher) objects to Ghazali’s treatment of space and time and claims that they are strongly *disanalogous*. In this paper I will explain the arguments of both philosophers and evaluate them in an effort to decide which is stronger.

**Ghazali’s Position**

Ghazali begins his argument by discussing our ability to image time. He says that we cannot imagine a space surrounded by nothing; this seems reasonable, as a quick experiment will prove. No matter how hard one tries, it is impossible to picture the “edge” of space without something (whiteness or black “void”) outside of it. Ghazali then says that in the same way, we cannot imagine the beginning of a period of time without more time preceding it. In other words, the mind can only grasp infinite time and space. However, says Ghazali, the mind is leading us astray by imagining such things, for in reality, an infinite space is impossible. Ghazali here gives a proof of the impossibility of infinite space.

*…empty space cannot be understood by itself, for extension is the necessary attribute of a body whose sides comprise space; a finite body implies the finiteness of extension, which is its attribute and the limitation of occupied space; empty space is unintelligible, therefore there is neither empty nor occupied space behind the world, although the imagination cannot admit this.* (Ghazali)

“Extension” is the attribute of space that involves its volume or size. So a space, like a room, could “extend” five feet in one direction and seven in another. Ghazali is using an Aristotelian conception of attribute, which means that he is viewing the attribute (in this case extension) as a separate thing applied to the “essence” or the space itself. Ghazali claims that extension can only apply to a finite space; i.e., only to a space that is measurable. Thus an infinite space cannot have extension. If a space does not have extension, it does not have size, and this is absurd. Therefore, says Ghazali, infinite space cannot exist.

Ghazali then begins to extend this argument to include time as well.

*And in the same way as it is said that spatial extension is an attribute of body, temporal extension is an attribute of motion, for time is the extension of movement just as the space between the sides of a body is the extension of space.*

Time also has extension. In this case it is the attribute of time involving how long the given time period is. Ghazali says that the same argument given above applies to time. That is, temporal extension can only apply to a finite, measurable period of time, and thus infinite time is absurd.

*There is no difference between temporal extension, which is apprehended as divided through the relation of before and after, and spatial extension, which is apprehended as divided through the relation of high and low.*

This is an important assertion. It ties together the two parallel arguments Ghazali has made, that space must be finite and time must be finite.

**Averroes’ Position**

This last assertion of Ghazali’s is the one Averroes takes issue with; or, at least, his two main refutations are worded in such a way that they appear to be trying to disprove that space and time are analogous. The first of these refutations is the following.

*For to imagine an increase in actual spatial magnitude, so that it must end in another actual spatial magnitude, is to imagine something which does not exist in the essence and definition of spatial magnitude, but to imagine priority and posteriority in a movement that occurs is to imagine something that belongs to its essence.* (Averroes)

Averroes argues that it is in the very definition of time that each instant must occur *within* time. That is, a single instant must be preceded by another instant and followed by another instant. Averroes does not simply assert this; he does give a more rigorous proof:

*The proof that each movement which occurs is preceded by time is this: everything must come to exist out of a privation, and nothing can become in the instant… and so it must be true that its privation must be in another moment than that in which it itself exists, and there is time between each pair of instants, because instant is not continuous with instant, nor point continuous with point.* (Averroes)

Here he claims that any occurrence must be preceded by a time in which that occurrence had not happened. For example, if Alfred writes a philosophy paper, the existence of the philosophy paper must be preceded by a time in which the philosophy paper was not written. This is the “privation” Averroes writes of. As interesting as it would be to discuss these assertions in relation to Averroes theory of an eternal God preceded by nothing whatsoever, such a conversation is beyond the scope of this paper.

If we grant Averroes that each instant must be preceded and followed by other instants, we must accept that time is infinite. If it had a beginning, the moment of beginning would be an instant not preceded by an instant. On the other hand, says Averroes, this logic does not apply to a point in space; it is perfectly reasonable according to him to allow a point that is not surrounded by space, such as one that exists on the end of a line.

Averroes’ second refutation is this:

*Further, the relation between time and motion is not the same as that between spatial limit and spatial magnitude…* (Averroes)

This is where Averroes tackles the topic of the analogousness of time and space more directly. He begins by discussing the relation between “spatial limit” and “spatial magnitude.” Essentially he writes about the way in which the spatial extension discussed earlier and space itself are related to one another. He claims that spatial extension is an attribute of space itself in the same way that blackness is an attribute of licorice or bigness is an attribute of elephants. That is, the attribute is “*individualized by the individuality of its substratum… and by its being in the place in which its substratum is”* (Averroes). This means that an attribute like spatial extension, or blackness, or bigness, in some way is confined and solidified from its lofty abstract position to a slightly more concrete existence where it can be *“…indicated by pointing at its substratum* [the thing of which it is an attribute]*…”* (Averroes). But, writes Averroes, time and motion do not work like this.

*For the dependence of time on motion is much like the dependence of number on the thing numbered: just as number does not become individualized through the individuation of the thing numbered, nor pluralized through its plurality, so it stands with the relation between time and movement.*

So rather than being constrained by the motions it measures, time remains abstract. Averroes analogy of the abstract concept of “number” is a good one. When we count three potatoes, we do not imagine that the abstract concept “number” has taken on the quantity three; but when we see black licorice, it is far more reasonable to say that blackness has taken on the location of the licorice.

*“Time, therefore… exists everywhere”* (Averroes). If time is not confined by the thing it measures (motion) then it must exist in all locations.

*Therefore, just as the supposition that “a thing numbered occurs” does not imply that number comes into existence, but it is a necessary condition for the occurrence of a thing numbered that number should exist before it, so the occurrence of movement implies that there was time before it.* (Averroes)

This is the crux of Averroes’ second refutation. In the same way that if you want to count potatoes, you need the abstract concept of number to already be in place, if you want to measure motion (using time) the concept of time must already exist. This further supports Averroes’ earlier supposition that each instant must have a preceding and following instant, and also highlights the differences between space and time that Averroes says Ghazali is ignoring.

**Evaluation of Positions**

At first glance, it may seem that Averroes has won this exchange. He has found what seem to be serious flaws in Ghazali’s position. But I think it pays to look more closely at how space is actually being used in these arguments. A careful reading suggests, to me, that it is less an integral part of the argument and more a rhetorical aid. That is, all the discussion of space in Ghazali’s proof of the finitude of time is merely used as a way to make the ideas presented more accessible, not as part of the actual proof. Ghazali’s argument seems to hold up perfectly well if we swap out the word “time” for “space.”

Moreover, this same paradigm persists in Averroes’ refutation. His first refutation does not require space; it is focused upon the nature of time, and that the definition of time requires infinite time. Even his second argument, which is specifically about the difference between space and time, does not require space to make its final point concerning the nature of time. In all cases throughout this discussion, spaced is used to contrast and highlight the nature of time, which is the real topic of discussion.

Therefore, I am of the opinion that Averroes is obscuring the issue by writing as if he is focusing upon the Ghazali’s conflation of space and time. In reality, the core of both of their arguments involve time alone. This is strike one against Averroes. Strike two is that, once we strip away the spatial analogies that veil the real issue, his arguments are weaker than Ghazali’s. Concerning his first refutation, his proof concerning the nature of the instant seems to me inadequate. It rests upon the notion that every change must be proceeded by a privation, and this requires further proof. This position is also seriously undermined by Averroes’ belief in an eternal God who violates this principle. Concerning his second refutation, it seems paradoxical to claim that the concept of time must temporally proceed a certain moment. For how can the concept of time “temporally” proceed anything if it is required for time to exist?

**Conclusion**

Let’s review: Ghazali tried to disprove the philosopher’s theory of infinite time. He appeared to do this by drawing an analogy between space and time and using a proof of the finitude of space to prove the finitude of time. In reality, all he did was take the proof, which had previously been applied to space, and apply it to time. This new proof stands on its own. Averroes takes issue with Ghazali’s (apparent) conflation of space and time. He gives two refutations, which both, in reality, boil down to arguments about the nature of time. In the end, both thinkers were really arguing about whether time could or could not be infinite, and space was brought in by a sort of humorous accident.