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Research Article

Endless and Infinite: An Evaluation of Alex Malpass and Wes Morrison Argument

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Abstract. In a recent paper published in 2020, Alex Malpass & Wes Morrison discuss the difference between beginningless past and an endless future and try to show that beginningless series of past events and an endless series of future ones are in the same boat. So if (as they believe) an endless series of events is possible, then the possibility of a beginningless series of past events should not be rejected merely on the ground that it would be an actual infinite. I will show in this paper that Malpass and Morrison's refutations are flawed and that their argument does not provide any evidence that a beginningless past is possible.

Keywords: Beginningless past, Endless Future, Actual infinite, Potential infinite.

INTRODUCTION

According to the Kalam cosmological argument, the past events of our universe cannot be infinite. The past of our universe has always been finite. The Kalam cosmological argument can be presented as, 1). Whatever begins to exist has a cause of its existence, 2). The universe began to exist, 3). Therefore, the universe has a cause of its existence.

The second premise is defended by Craig & Sinclair, according to their argument: 1). An actual infinite cannot exist, 2). An infinite temporal regress of events is an actual infinite, 3). Therefore, an infinite temporal regress of events cannot exist. (Craig & Sinclair 2009: 103).

MM (Malpass & Morrison) said in their paper, one might think that if the beginningless past is impossible for this consideration, then it can also apply to the endless future. One can provide the following argument: 1). An actual infinite cannot exist, 2). An infinite temporal progress of events is an actual infinite, 3). Therefore, an infinite temporal progress of events cannot exist.

MM tries to prove their second argument as valid as the original argument in their paper. In Section: II I will show that MM fails to prove Endless future events as countably infinite and that Morrison's angel scenario fails to prove future events as actual infinite. In Section III I will show that there is nothing wrong with Craig's presentism and that future events cannot be expressed by functions. Then in section IV, I will show that future events are always pure potentials and in section V I will show that even if the inverse operation creates a contradiction for transfinite numbers, it is not possible to calculate future events like actual infinity in the case of future events. Finally, in section VI, I will show that if the Hilbert Hotel is metaphysically impossible, then the beginningless past is also impossible.

Potential vs Actual Infinity

Before discussing this section, actual infinity and potential infinity need to be defined: Infinity. An actual infinite is a complete set with an infinite number of members. Actual infinity is an inclusive set whose members have a one-to-one correspondence with normal numbers. This actual infinity is expressed mathematically by \aleph° (Aleph). The beginningless past is actually infinite because an infinite number of events towards the past have been actualized making it beginningless and therefore actual infinity. Potential infinity, on the other hand, is a set of possible infinities whose members are always finite, but whose members grow to infinity without limit, i.e., it always runs to infinity but can never be filled to infinity.

Alex Malpass & Wes Morrison respond to Craig's criticism of Morrison in section(II) of their paper, where Craig states,

‘So with respect to Morrison’s illustration of two angels who begin to praise God forever, an A-theorist will concur whole-heartedly with his statement, ‘If you ask, ‘How many distinct praises will be said?’ the only sensible answer is, infinitely many’—that is to say, potentially infinitely many. If this answer is allowed the A-theorist, then Morrison’s allegedly parallel arguments collapse. (Craig 2010: 452–453)

Alex Malpass & Wes Morrison (MM) said in their paper, "Even if something is potentially infinite in the Dynamic theory of time, it is not an endless future." That is, Craig's claim that the future is actually 'potentially infinite' is actually wrong. As Craig says;

'Such a collection would be one in which the members are not definite in number but be increased without limit (Craig 1979: 68–69, emphasis added)'

They used a function to disprove Craig's claim. Since the membership of the set is fixed, they used a set such that as the input to the function increases, the output also increases. As they take a set of natural numbers (0,1, 2, 3,...)

Now, if $A(x)$ is a function, here $\{y \mid y \leq x\}$, where the value of variable x is the input to the function. $A(2) = \{0, 1, 2\}$, and $A(5) = \{0, 1, 2, 3, 4, 5\}$, etc. Here if the value of variable x is increased then the value of $A(x)$ also increases. Here $A(5) = \{0, 1, 2, 3, 4, 5\}$ has larger cardinality than $A(2) = \{0, 1, 2\}$. They rule it out as actual infinity because its one-to-one correspondence with a real subset of this set is not possible (that is, the Cantorian property is absent in this set) so the value of $A(x)$ is finite for any natural number value of x . Later they introduced a different set $B(x)$ where $\{y \mid x < y\}$ i.e. the input will be greater than the variable. where, $B(2) = \{3, 4, 5 \dots\}$, and $B(5) = \{6, 7, 8 \dots\}$, etc. In this set, as the value of x increases, the value of $B(x)$ does not increase but remains the same. As a result, for any value of x , the value of $B(x)$ will be actually infinite. Here they come up with two dilemmas, firstly the number of events 'will be' those events are 'ever increasing' these events are not increase with time, only decrease. Second, in the growing block theory of time, over time, events become associated with blocks of actual events and potential future events and events that have occurred, similar to the $A(x)$ function described by MM. And since the future event cannot increase over time (according to MM) the future infinite is not potential infinite but actually infinite like $B(x)$ function.

There are several flaws in their claim. The first thing that happens is that it can increase over time, according to their analogy, if say ten presidents are sworn in today, the number of swearing-ins will decrease after the president is sworn in, but not increase. Here basically 'will take an oath' i.e. what is yet to be actualized increases, for example, if 10 people take an oath, it becomes actualized and becomes past and the event of what remains yet to be only decreases. In more detail, the events that will occur are future events until they are actualized, so the analogy to the swearing-in of the president is incorrect here. Because 10 people will swear it is a set and once accepted it is a complete set. , Moreover, future events are not fixed times as in the 'presidential inauguration' analogy, but future events are indefinite and incalculable. Second, according to Growing block theory of time, over time, events become associated with blocks of actual events and potential future events and events that have occurred, similar to the $A(x)$ function described by MM, but MM misses the point.

According to the growing block theory, past, and present is real and the future is unreal and potential. (Emily Thomas 2017) In that case the future event will be considered as a future event until it is actualized. ie potential future events, Before being actualized into the past, they remain future events and future events are

potentially infinite. Basically dealing with 'potential' infinity using functions is a big problem here. Because in the function $A(x)$ as the value of x increases the value of $A(x)$ the future event does not increase but in Dynamic theory of time only the present is real and the future event is potential as a result of which the future event is uncountable. Now using the function $A(x)$ it is not possible to show mathematically that the future event is continuously increasing and it is also wrong to claim that the future event is actually infinite by using the function $B(x)$ with certain numbers in one-to-one correspondence.

When we assume, A function $B(x)$ that has this property is assumed to already exist because if a set is kept in one-to-one correspondence then none of its members can be incremented at least. Wes Morrison's hypothetical scenario is- 'Suppose that God has just decreed that Gabriel and Uriel will take turns praising Him for one minute of celestial time and that they will do so forever. Gabriel will do the odd-numbered praises and Uriel the even-numbered ones. Let's go a step further. So as not to leave any opportunity for Gabriel or Uriel to mess things up, let's suppose that this is no mere instruction or recommendation, but that God has exercised His supreme power in such a way as to make it the case that each praise in the endless series of praises we have envisaged will occur. Each of them is discrete, wholly determinate, and certain to occur because God has determined that it will occur... If you ask, 'How many distinct praises will be said?' the only sensible answer is, 'Infinitely many.' (Morrison, 2010)

In his reply to Morrison, Craig argued that on a dynamic (A-) theory of time, the series of praises that will be said by either (or both) of the angels in Morrison's scenario is merely potentially infinite. Craig argued that it is 'composed of a finite but ever-increasing number of events with infinity as a limit...So with respect to Morrison's illustration of two angels who begin to praise God forever, an A-theorist will concur whole-heartedly with his statement, 'If you ask, 'How many praises will be said?' the only sensible answer is, infinitely many' – that is to say, potentially infinitely many. If this answer is allowed by the A-theorist, then Morrison's allegedly parallel arguments collapse.' (Craig, 2010)

Morrison is not satisfied with Craig's reply. Morrison writes, 'Craig is certainly right about one thing. The number of praises that have been said by the angels in my scenario will always be finite. Right now, the number is zero. Once the praising has begun, the collection of praises that have been said will increase without limit (or, as Craig prefers, 'toward infinity as a limit'). But I was not asking for the number of praises that have been said. Instead, I was asking for the number of praises yet-to-be-said – that is, for the number of praises, each of which will eventually be said. In the world of my thought experiment, the series of praises yet-to-be-said is not growing, is never finite, and does not satisfy Craig's definition of 'potentially infinite.' (Wes Morrison 2012)

According to Morrison, the events that may still happen do not increase and they are not always finite. Morrison's main point is about what 'will be' and 'yet to be' said. His claim is 'yet to be said' or what will eventually be said is infinite. The point to be noted here is that things to be said 'will be' are future events just like 'yet to be' means 'that will be said' and if 'yet to be' means 'that said will be' (which is

necessarily true) would still yield the same answer, namely potential infinity. For example, suppose the future event is pre-determined by God, now if God tells Samuel and Daniel to pray for 60 seconds of every 1 second of celestial time, How many prayers will there be? If the question is asked, the answer will be '60' and if the question is asked, 'how many more prayers are left to say'? That is, how many will be called? The answer will be '60'. Returning to Morrision's illustration,

By (U&G) the number of complimentary sentences uttered (will be) would be potentially infinite. And if, according to Morrision's illustration, it is asked 'How many complimentary sentences are or can be said? The answer would be 'infinite number' ie whether 'potentially infinite number. Morrision agrees with this. Now if the question is 'how many prayers are still left to say? yet to be said? That is, how many prayers will be said? Then the answer would be 'potentially infinite '. That is, events that are not actualized are always finite (Craig's note; and Morrision accepts this) so how many will be said (Will be said)? Future refers to potential events that are not yet part of reality, so the answer is 'potentially infinite', as is 'yet to be said'. Here both 'will be' and 'yet to be' refer to the future event in a definite manner and the other (yet to be) in an indefinite manner. Morrision's semantic distinction between ' will be' and 'yet to be' does not do any symmetry breaking here.

What If Future Events Don't Exist? An Analysis

MM tries to show in section (III) of their paper that according to Craig's presentism if future events do not exist this does not mean they do not exist, because they will exist (will be). Which makes their raised function $B(x)$ possible. Not really. Rather, future events are now only potential, not actual. But here they are not future event countable like function $A(x)$ nor function of Cantorian property like function $B(x)$. Because when something is represented as a set where every member is present, a complete set contains every member, there is no case of sets being added later or the number of sets increasing. Basically, when the value of x increases in the function $A(x)$, the value that $A(x)$ increases is part of $A(x)$, increasing or decreasing the value of the variable x results in the function $A(x)$. Let's say, The set of natural numbers (0, 1, 2, 3....) $A(x)$ function, $\{y | y \leq x\}$, (the output will be less than or equal to the input.) x is variable. Now, $A(4) = \{0, 1, 2, 3, 4\}$ again, $A(2) = \{0, 1, 2\}$. Between these two sets, the elements of the function $A(4)$ are part of the set of natural numbers and nothing outside of it. But potential future events cannot thus be confined to any single set or cumulative set. Moreover, it is not necessary that all possible things at least represent something concrete mathematically.

FUTURE EVENTS AS PURE POTENTIALITIES'

Future potentiality is discussed in sections (IV) & (V) of MM's paper. The main point of the discussion of the two sections is that the future event will be actualized, as time passes, the potential countable events will be 'actualized' and those 'yet to be actualized' will also be actualized, which is actual infinite. The problem, in this case, is that when a future event is actualized in the dynamic theory of time, it is no longer future, it becomes present, and since the past is finite, the countable future events that have been actualized will also be finite present, and then the potential future

event has not been actualized. This means the future event is still pure potential not actual.

INFINITY MINUS INFINITY

In Section (VI) of their paper, the point that MM brings up is infinity minus infinity. According to Craig, the inverse operation for transfinite numbers creates a contradiction. For example, in Transfinite arithmetic, subtracting infinity from infinity gives different results, i.e., subtracting identical quantities from identical quantities gives non-identical results, which is absurd. MM discusses this topic, if this infinity minus infinity applies to the beginningless past, then parallelly it applies to the Endless Future as well. We can mentally subtract actualized events from future events. So if one thinks the infinity minus infinity argument shows that a beginningless past is impossible, then the same is true of an endless future.

I think several flaws exist in this section of MM. The Hilbert hotel-type analogy discusses a hotel room full of guests that have become actualized. That is, it is already real and currently exists. As a result, it is possible to calculate hotel rooms and guests in these cases, but since the future is potential, since any of its events (upcoming events) are calculated as actualized, then it is not calculated as future events but 'actualized' events. What has already happened is reckoned with. Moreover, in Section II & Section III, I have shown that pure future events can never be represented in a set, but when represented in set form, they are no longer future events but actual events like past and present. So for Craig's Infinity minus Infinity argument, although a beginningless past is impossible, an Endless future is not.

Actual Infinity of Things in the Present

In (the MM) paper, section (VII) highlights the Modified Hilbert hotel analogy given by Locke in 2014. In this section, MM states that the 'beginningless past or actual infinity is not essentially the same as Hilbert Hotel increasing guests at the same time which makes Hilbert Hotel wrong' analogy on this issue of that beginningless past. In his modified Hilbert hotel analogy Andrew Loke writes,

' Suppose this is how Hilbert's Hotel is constructed: there exists a 'hotel room builder' who has been building hotel rooms at regular time intervals as long as time exists. Suppose there also exists a 'customer generator' which has been generating customers who checked in the hotel at regular time intervals as long as time exists. Suppose that the hotel rooms and the customers continue existing after they have been built and generated, respectively. Now if the actual world is one in which the universe is past-eternal, then there would have been an actual infinite number of time intervals, and an actual infinite number of hotel rooms and customers occupying the rooms. In other words, if the actual world were one in which the universe is past-eternal, then there would be a world in which an actually infinite number of things have been actualized' (Loke 2014, p. 49).

According to Locke, an infinite collection of co-existing items is generated step by step if time has no beginning. To refute this, MM in their paper presents Cohen's analogy. They refer to Cohen's paper and say that if God is assumed to be the builder of hotel rooms, and if God is omnipotent, then he simply could say "Let every hotel room that will be built at some time later come into being now', '. This breaks the

symmetry breaking mentioned in Locke's scenario. Again if God could do this (counting all the natural numbers) then it is metaphysically impossible but not logically impossible. And their main point in this section is that the infinite past has nothing to do with the possibility of an infinite number of objects located in the present. This point raised by MM is crucial because, refuting Cohen's analogy, Erasmus wrote, Cohen states that his argument depends on the theist being committed to the following proposition:

(P₁) For any object *x* that will come into existence in the future, if God is omnipotent, then God may bring *x* into existence at the present moment. It turns out, however, that Cohen's argument depends on the theist being committed, not to (P₁), but to the following proposition:

(P₂) For any collection *x* of objects that will come into existence in the future, if God is omnipotent, then God may bring every element of *x* into existence simultaneously at the present moment.

However, (P₂) is patently false. If a tree will come into existence in one year's time, and a boat will be built from the wood of that tree in ten years' time, then can God bring both the tree and the boat into existence simultaneously right now? Clearly not, for the boat and the tree cannot exist simultaneously. Likewise, because it is part of the nature of the potential infinite that its members cannot exist simultaneously, God cannot bring a potentially infinite number of things into existence all at once. (Erasmus, 2016)

Here it is logically impossible for all the members of the potential infinity to be present at the same time. Because potential means that which is not yet actualized, and assuming a full set means actual. That is, with semantic confusion here, 'potential is called actual which is impossible. Again the explanation given by MM assumes that there is no symmetry breaker between past and future, However, I have shown that MM's refutations for past and future symmetry breaking are all flawed. Here the future events are yet to be actualized and the past events have been actualized and the present events are being actualized due to which the symmetry breaker exists here. As a result, future events that have not come into existence and those that have come into existence are no longer present or future, but actualized and past. What is being demanded here is potential, i.e. the potential has not yet been actualized, even if it is actualized, it can remain potential! Which is quite impossible. Moreover, there is no reason to assume that God's omnipotence would be restricted if he did or did not do something like that. Since that which is still potential is presented as timeless according to God's instructions, it is considered in time which is essentially a categorical error.

CONCLUSION

I showed that Alex Malpass & Wes Morrison were not able to refute the symmetry breaker of Past and Future. Also beginningless series of past events and an

endless series of future are not in the same boat. And if the Hilbert Hotel is metaphysically impossible, the Beginningless past is also impossible.

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