Critique of Mathematical Infinity from the Standpoint of Physical Discreteness
Regarding set theory developed by Georg Cantor, and especially the concept of cardinality of sets. I'll get straight to the point. Let's take the most vivid example of supposed infinity — the set of fractional numbers between 0 and 1 — and examine it through tangible phenomena.

Take time, for instance. We have a range from 0 to 1 second. If the theory held up 100% in physical terms, this infinity would never be traversed, **and the time between two seconds would never pass — or rather, never finish.** An hour would be identical to a minute or even a millennium. The same applies to material or wave-based physics: particles cannot be infinitely divided into smaller and smaller components, because in that case any speck of bellybutton lint would contain an infinite number of particles — which, at least to me, seems utterly impossible — and would thus be equal in content to any other object, even the entire universe.

So, mathematical infinity is purely a fictional notion. In the real world, everything is discrete, though we can't yet define the exact precision of this discreteness. This is also supported by the paradox of the median and base of a triangle being equal, or Aristotle's wheel paradox — the confusion vanishes if we assume a minimum discrete unit and count them: the number turns out to be different.

At the same time, I don't deny the *possibility* of an infinite universe, because overlapping discrete units, following one after another like ticks of time, could indeed go on without limit. But this does not require any fantastical tricks where one infinity is somehow "bigger" than another or is a subset of it. Thus, we are left with only one *potential* infinity — that of the spacetime continuum, which contains all sets within it.

Let's even check this unified, sole infinity. Stretch your arm forward, gaze into the infinite space, and compare two rays: [elbow, ∞) and [wrist, ∞). It may seem that the first is "longer" because it includes the second plus the segment from elbow to wrist. But that's mistaken logic, because the starting points are merely points belonging to infinity — they are not closer or further to any center or edge, because there is no center or edge. Therefore, in the real world, there are no "different sizes" of infinity as mathematics claims. And in that classic thought experiment, the triangle's median and base are not equal — they consist of a different number of minimal discrete units.

Thus, there exists a smallest indivisible segment of time. And a smallest indivisible unit of space. From this follows a hypothesis: the maximum possible speed in our world is the movement of the smallest possible particle (or wave, or unit of energy) into the position of the next discrete cell, in the span of the smallest time unit. That means: speed is simply how many such discrete time units it takes for a particle to jump to a neighboring space cell. And since this minimal time interval exists (see the first paragraph), and nothing happens *during* it, yet the particle changes position, then the only possible way for it to move is teleportation. (Let me clarify that "particle" here is a conditional term.)

Therefore, movement of any object is a kind of teleportation of linked particles with displacement — the "old tenants" in the target position are pushed out. In this scenario, there must be an informational link between the energy intending to occupy a new position and the energy at rest already in that position. The latter must first receive a signal instructing it to vacate, passing along a similar signal forward. Another possible action per unit time is the transformation of energy into matter and vice versa. I also assume that one energy can overlap with another at the "landing site" during teleportation.

(I want to emphasize that teleportation is a real, proven phenomenon — for instance, in electron excitation or quantum tunneling — though not yet through quantum entanglement, which is still not quite the right fit here.)

So in the real world — the one that numbers are meant to describe — there is *not* an infinite number of values between 0 and 1, and set theory cannot be fully applied in its ultimate form. Infinity is just a way to say something is very long, large, or extended. I don't intend to discredit the theory — it's important and fascinating as a stage in humanity's understanding of the world — but in my opinion, it needs serious caveats and deep rethinking at the intersection of multiple disciplines.

If any of these ideas seem interesting to you, I'd be glad to hear feedback.
P.S. I believe the speed of light is a major clue to unlocking the secrets of the universe.