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Neutrosophy and Infinity: How infinitely big can infinity be?

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Abstract

The concept of infinity has long been a subject of fascination and contemplation in the history of philosophy. From the ancient Greeks to modern mathematicians and philosophers, infinity has been approached from multiple angles—each offering unique insights. This essay explores how Neutrosophy perceives infinity and contrasts it with other philosophical approaches, such as those of Kant and Cantor, while addressing the question: How infinitely big can infinity be?

Keywords: Infinity, Transcendental Ideas, Human Cognition, Dialectical Process, Transfinite Numbers, Cardinality, Paradoxes of Infinity, Neutrosophy, Multiplicity, Ambiguity, Uncertainty, Relational Infinity, Mathematical Abstraction, Neutrosophic Infinity, Dynamic Infinity, Ambiguous Infinity, Infinite Realities.

1 | Introduction: A Historical Overview

Before the 19th century, infinity[1] was primarily viewed as a potential concept—something that could go on forever but was never complete. Aristotle[2] had distinguished between *potential* and *actual infinities*, [10] where potential infinity described an unending process, like counting numbers, and actual infinity referred to a real, measurable infinity (which Aristotle rejected) [16].

For Kant,[3] infinity is a transcendental idea, meaning that it is not something that can be directly apprehended through sensory experience but is instead a necessary concept for structuring our understanding of the world.

For example, Kant claims that space and time are both infinite in their nature, but this infinity exists only as a condition of possibility for human experience. Infinity, in this view, is not an empirical reality but a fundamental structure of human cognition—an idea we use to make sense of the world.

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[1] Easwaran, Kenny, Alan Hájek, Paolo Mancosu, and Graham Oppy, "Infinity", *The Stanford Encyclopedia of Philosophy* (Summer 2024 Edition), Edward N. Zalta & Uri Nodelman (eds.), https://plato.stanford.edu/archives/sum2024/entries/infinity.

[2] Shields, Christopher, "Aristotle", *The Stanford Encyclopedia of Philosophy* (Winter 2023 Edition), Edward N. Zalta & Uri Nodelman (eds.), https://plato.stanford.edu/archives/ win2023/entries/aristotle.

[3] Bird, Otto Allen, Duignan, Brian. "Immanuel Kant". *Encyclopedia Britannica*, 10 Feb. 2025, https://www.britannica.com/biography/Immanuel-Kant.

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Similarly, Hegel[1] presented infinity as the dynamic unfolding of the Absolute. For Hegel, infinity is not a static, unchanging concept but a dialectical process, [1] where the finite and the infinite constantly interact. Infinity becomes a synthesis, not a mere sum of two abstract extremes, but rather a dynamic unfolding that integrates the finite within it.

Both Kant and Hegel see infinity as a necessary conceptual tool for understanding the universe, but they focus primarily on how human thought and experience structure the infinite, rather than examining its inherent qualities or paradoxes. Infinity, in their view, is conceptualized in relation to human limitations and frameworks, making it abstract and distant.

The mathematician Georg Cantor[2] revolutionized the understanding of infinity with his theory of transfinite numbers. Cantor's work introduced a more sophisticated view of infinity by showing that there are not just infinitely large quantities, but also different types or "sizes" of infinity.

Through his groundbreaking work on set theory, Cantor showed that some infinities are larger than others, even though they are all infinite. This paradoxical nature of infinity is illustrated by Cantor's famous *diagonal argument*, which demonstrates that the set of real numbers is "larger" than the set of natural numbers, despite both being infinite.

However, this view of infinity raises a central paradox: how can two sets, which seem clearly different in nature, still be considered equal in their infinite cardinalities?

In building responses, one could rely on [2-4, 6-8, 12, 18].

2 | Types of Infinities

2.1 | Potential Infinity

This refers to infinity that is never complete or finished, such as an endless sequence or an ever-expanding universe. An example would be the natural numbers: 1, 2, 3, 4, 5, and so on, which continue forever. These are processes or series that do not have an endpoint, meaning you cannot reach the "end" of the numbers by continuing to count or the "end" of the universe by traveling in a spaceship. Aristotle [3] accepted this kind of infinity without issue, recognizing that such infinities existed without causing any philosophical dilemmas in his worldview.[3]

2.2 | Actual Infinity

This, on the other hand, refers to a completed or concrete infinity that could be measured or observed in a specific location, such as the density of a solid, the brightness of a light, or the temperature of an object becoming infinite at a particular point. Aristotle, however, rejected the idea of actual infinities [9]. He believed that such infinities couldn't exist in nature.[4] His view was tied to his belief that a perfect vacuum couldn't exist, because, if it did, objects would be able to accelerate to infinite speeds without encountering any resistance, thus creating an infinite speed. [17]

2.3 | Countable Infinity

Cantor [11] introduced the idea of countable infinity—the smallest form of infinity, which includes the set of natural numbers (1, 2, 3, 4, 5, …). This type of infinity is "countable" because you can list the elements one

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[1] Knox, T. Malcolm. "Georg Wilhelm Friedrich Hegel". *Encyclopedia Britannica*, 15 Jan. 2025, https://www.britannica.com/biography/Georg-Wilhelm-Friedrich-Hegel.

[2] The Editors of Encyclopaedia Britannica. "Georg Cantor". *Encyclopedia Britannica*, 2 Jan. 2025, https://www.britannica.com/biography/Georg-Ferdinand-Ludwig-Philipp-Cantor. Accessed 1 February 2025.

[3] Sharvy, R. "Aristotle on Mixtures." *The Journal of Philosophy*, vol. 80, no. 8, 1983, pp. 439–457.

[4] Sachs, J. "Aristotle: Metaphysics." Internet Encyclopedia of Philosophy, www.iep.utm.edu/aris-met.

by one, even though the list goes on forever. A set is countably infinite if its members can be placed in a one-to-one correspondence with the natural numbers. For example, the even numbers (2, 4, 6, 8, ...) are also countably infinite, because you can pair each even number with a unique natural number (1 → 2, 2 → 4, 3 → 6, etc.). Intuitively, you might think there are fewer even numbers than natural numbers, but in terms of infinity, both sets have the same size. This counterintuitive idea was first noted by Galileo, who found it paradoxical.

Similarly, Cantor showed that the set of rational numbers (fractions) is countably infinite. Even though it seems like there are more rational numbers than natural numbers, they can still be arranged in a systematic list. One way to do this is to list fractions based on the sum of their numerator and denominator. For example, for the sum 2, there is only one fraction (1/1), for the sum 3, there are two fractions (1/2 and 2/1), and so on. By systematically arranging them in this manner, we can ensure every rational number is listed, proving that the set of rational numbers is countable.

2.4 | Uncountable Infinity

Some infinities are though uncountable, meaning they cannot be listed in a one-to-one correspondence with the natural numbers. The classic example is the real numbers (the continuum). Unlike the natural numbers or even the rationals, the real numbers cannot be arranged into a list that captures every single one. This is because between any two real numbers, there are infinitely many more real numbers. Cantor's proof (known as the *diagonal argument*) showed that the real numbers form an uncountable set, which is larger than the set of natural numbers.

2.5 | Absolute Infinity

Cantor also showed that there are infinitely many sizes of infinity. After discovering the uncountable infinity of the real numbers, he showed that you can always create a larger infinity by taking the set of all subsets of a given set. For example, if you take an infinite set, such as the real numbers, and form the set of all its subsets, you get a larger infinity. This process can be repeated indefinitely, creating an endless hierarchy of infinities, with no "largest" infinity—this leads to the concept of absolute infinity.

3 | Mathematical Controversy: Constructivism vs. Neutrosophy

Cantor's revolutionary work on transfinite numbers and the concept of actual infinities deeply transformed the field of mathematics, but it also ignited significant philosophical and mathematical controversy. By extending the idea of infinity beyond the familiar notion of endless processes, Cantor suggested that infinity could be a concrete, measurable entity, capable of being categorized, manipulated, and even quantified. This bold move unsettled many mathematicians, who feared that admitting actual infinities into the mathematical framework could lead to paradoxes and contradictions, potentially undermining the logical consistency that mathematics relied on.

At the heart of these concerns was the fear that the acceptance of infinite quantities, especially when they could be manipulated as actual objects, might destabilize the entire structure of mathematics. In particular, the idea of creating an infinite number of sets, each with an infinity of elements, seemed to invite contradictions that could unravel the axioms on which mathematical systems are built. If contradictions could emerge, the whole edifice of mathematical knowledge could collapse, leaving nothing certain behind.

In response to these concerns, some mathematicians turned to *constructivism* or *finitism*.[1] These philosophies[2] argue that mathematical objects should only exist if they can be explicitly constructed through a finite number of steps, each of which is logically determined and verifiable. In constructivist mathematics, only those objects that can be built up step-by-step, from a finite sequence of operations, are considered valid. This approach mirrors the way a computer processes information—by executing a finite series of operations that lead to a definite outcome. Constructivists maintain that by restricting mathematical objects to those that are finitely constructed, paradoxes and contradictions are avoided, ensuring the stability and consistency of the mathematical system.[3]

The constructivist philosophy, while influential, remains controversial and is considered more restrictive than Cantor's approach. It limits the scope of mathematics to objects that can be finitely defined or constructed, thus excluding many ideas, such as actual infinities, that Cantor and other mathematicians found central to the theory of numbers and sets.

The debate between constructivist and transfinite approaches reflects a deeper philosophical divide about the nature of mathematics. This division aligns with ideas explored in neutrosophy, which could offer a way of understanding this mathematical debate in regard to the nature of infinity. In neutrosophy, rather than seeking to eliminate contradictions or paradoxes, one could embrace them as integral to the broader understanding of infinity. Much like how neutrosophy blends multiple truths, a neutrosophic approach to Cantor's transfinite numbers might acknowledge that actual infinities can coexist with finite structures, challenging the notion that these paradoxes undermine mathematical truth [13-15].

From a neutrosophic perspective, the acceptance of actual infinities in Cantor's theory does not need to lead to a collapse of the system, but rather invites a deeper exploration of how seemingly contradictory elements can coexist within the framework of mathematics. Instead of rejecting infinity as an unmanageable or paradoxical concept, neutrosophy might suggest that infinity is inherently layered and multifaceted, just as mathematics contains both countable and uncountable infinities, finite and infinite structures, and both constructive and non-constructive approaches to understanding reality.

Thus, while constructivism restricts itself to finite and tangible entities, neutrosophy, with its embrace of contradiction and fluidity, could allow for a broader, more inclusive exploration of infinity—one that sees paradoxes not as flaws to be fixed but as opportunities for expanding the horizons of understanding.

4 | How Infinitely Big Can Infinity Be?

One of the most captivating questions about infinity is: How infinitely big can infinity be?

Therefore, Kant suggests that infinity, in a transcendental sense, is not bound by empirical limitations and thus can be understood as an infinite horizon—an unending space or time that structures our experience but is never fully grasped. Cantor, with his transfinite numbers, takes this idea further by suggesting that infinity can be categorized into different sizes. The infinite set of real numbers, for instance, is "larger" than the set of natural numbers, even though both are infinite. This reveals the paradox of infinity: it seems that infinity itself can grow larger, that there are infinities within infinities.

In neutrosophy, [15] however, the idea of infinity being "bigger" or "smaller" is not a matter of clear-cut distinctions but rather a continuum of possibilities. Infinity itself is inherently layered, ambiguous, and

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[1] Iemhoff, Rosalie, "Intuitionism in the Philosophy of Mathematics", *The Stanford Encyclopedia of Philosophy* (Summer 2024 Edition), Edward N. Zalta & Uri Nodelman (eds.), https://plato.stanford.edu/archives/sum2024/entries/intuitionism.

[2] Prominent advocates of constructivism included L.E.J. Brouwer, who championed the idea that mathematics should be grounded in what can be explicitly constructed. Hermann Weyl, a leading figure in 20th-century mathematics, also explored this perspective, though he later adapted his views.

[3] Van Bendegem, Jean Paul, "Finitism in Geometry", *The Stanford Encyclopedia of Philosophy* (Spring 2024 Edition), Edward N. Zalta & Uri Nodelman (eds.), https://plato.stanford.edu/archives/spr2024/entries/geometry-finitism.

contradictory. In this framework, infinity may be both infinitely big and infinitely small depending on how it interacts with the finite, the contradictory, and the neutral. Infinity is not just a mathematical object but a concept that evolves and changes depending on context.

In this view, the infinite may not be bound to a "size" at all—it may simply be a condition of possibility for understanding the universe and ourselves. The infinite may exist not only as a theoretical abstraction but as an experiential reality that is felt as an unending process, like an eternal cycle in which we never reach an "end" or a final truth.

The infinity of the universe might be felt as a circular or closed structure where we keep spiraling without ever arriving at a final destination.

4.1 | Infinitely Small Numbers

The mention of "infinitely small numbers" refers to the concept of infinitesimals. In mathematics, infinitesimals are numbers that are greater than zero but smaller than any positive real number, often used in calculus (e.g., in the concept of limits).

Example: A number like $10^{-1,000,000,000}$ (ten raised to the power of negative one billion) is extremely small, but it is still a real number. Such numbers can be used in various mathematical contexts to approximate real-world phenomena, particularly in calculus when analyzing continuous change.

Infinitesimal numbers are typically conceptualized in the context of limits, where we consider the behavior of a function as its values get closer and closer to zero but never actually reach it.

4.2 | Infinite Numbers Between Zero and One

This is a well-known property of the real number line. Between any two distinct real numbers, no matter how close they are, there are infinitely many other real numbers. This is known as the *density* of real numbers.

Example: If you pick any two numbers between zero and one (say 0.1 and 0.2), you can always find another number between them (like 0.15, or 0.125). You can repeat this process ad infinitum, showing that there are infinitely many numbers between any two distinct points on the number line.

Even though we are talking about an infinite number of real numbers between any two points, the interval itself (from 0 to 1) is finite, meaning that the length of the interval is bounded (it has a definite size, specifically a length of 1).

4.3 | The Infinite Bricks and the Building Paradox

Imagine an infinite number of infinitely small bricks. The question is: if we used all these infinitely small bricks to construct a building, would the total volume of the building be finite or infinite?

This idea brings up several key concepts:

4.3.1 | Summing Infinitesimals

In mathematics, if you add infinitely many infinitesimal quantities, the result can still be a finite quantity. This happens, for example, in the *concept of a convergent series*. A classic example is the geometric series:

$$S = 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \cdots$$

The sum of this infinite series is finite, even though it involves adding infinitely many terms. The sum converges to a specific number (in this case, 2).

4.3.2 | Volume of the Building

To apply this concept to the "bricks" scenario, one could think of it as a *limit*. If one has an infinite number of bricks, each with an infinitely small size, and one constructs a building by adding them together, one would need to consider whether the total volume converges to a finite value or grows without bound.

If the total volume of the building is *the sum of infinitely many infinitesimal bricks*, it could still result in a finite volume, provided that the size of the bricks diminishes fast enough. This would be analogous to the idea of an infinite series whose sum is finite (such as the infinite sum of smaller fractions mentioned above).

However, if the infinitesimals do not shrink quickly enough, the total volume could become infinite. For example, if the size of the bricks decreases in a way that does not result in a convergent sum, the building's volume could become infinite.

4.4 | Philosophical Interpretation

From a philosophical standpoint, the example could be seen as a metaphor for dealing with paradoxes and the limitations of human understanding of infinity. It raises the question of whether something can be infinite in quantity (like the number of bricks) but still result in a finite outcome (like the volume of the building). This is reminiscent of *Zeno's paradoxes*—the idea that an infinite series of steps can lead to a finite outcome, or alternatively, lead to a contradiction, depending on how the steps are taken.

In summary:

- *Mathematically*, the sum of infinitely many infinitesimally small numbers can indeed be finite, depending on how those numbers behave (e.g., in a converging series).
- *Philosophically*, the example raises intriguing questions about the nature of infinity and the limits of human reasoning—can something infinite be contained within the finite? This is a classic paradox that has fascinated thinkers for centuries.

So, to answer the specific question: The total volume of the building constructed from infinitely small bricks could be finite, depending on how the sizes of the bricks are defined and summed. If the infinitesimals diminish quickly enough (i.e., the series converges), the total volume remains finite. If not, it could theoretically become infinite.

5 | Infinitely Small Bricks and Measure Zero

Let's start over in exploring the concept of "infinitely small bricks" and what it means for their *measure* to be zero.

5.1 | Point-Sized Bricks

If each "brick" in the construction is point-sized, then mathematically, each brick has no volume or measure. A point is a mathematical abstraction—it has no length, width, or depth. In the context of the real world, we might think of a point as having size zero, and therefore if you use infinitely many of them, the total measure (or total volume) of the object you're constructing would still be zero.

This is related to the concept of a measure zero set. A measure zero set is a collection of points that, despite potentially being infinite, occupies no space. For example, the set of all rational numbers between 0 and 1, although infinite, has measure zero on the real number line, because it can be covered by intervals of arbitrarily small total length.

5.2 | Countably Infinite Bricks

If one has a countably infinite number of bricks (bricks you can list one by one, like the natural numbers), and each one is point-sized, the collection of these bricks still has measure zero. Even though one has infinitely many of them, the total size of the "building" made from these bricks remains effectively zero, because each brick occupies no space.

This is analogous to the idea of a countably infinite set of points that adds up to zero in terms of size, which leads us to the concept of measure theory. Measure theory helps us formalize the notion of size or volume in more abstract settings, especially when dealing with infinite sets. In this case, a set of countably infinite points, all with zero size, results in a set of measure zero.

5.3 | Uncountably Infinite Bricks and Infinite Possibilities

Now, if one has an uncountably infinite number of bricks, things get more interesting.

5.3.1 | Uncountably Infinite Bricks

A set is *uncountably infinite* if one can't list its elements one by one, as is the case with the real numbers. The set of real numbers between 0 and 1 is an example of an uncountable set.

If one has *uncountably many point-sized bricks*, one may be able to construct an object with nonzero volume. This is because uncountable sets, unlike countable ones, do not behave the same way in terms of measure theory. The power of an uncountable set lies in its ability to "fill" spaces in a way that countable sets cannot.

5.3.2 | Infinite Size and Pulling Walls from It

The claim that you can keep pulling walls of the same size from an uncountable collection of bricks "infinitely" and not make the collection any smaller or less dense is connected to the idea that *uncountable sets* can be partitioned and reassembled in unexpected ways, leading to counterintuitive results.

6 | The Banach-Tarski Paradox

The Banach-Tarski Paradox states that:

It is possible to take a solid ball in 3-dimensional space, break it into a finite number of pieces, and then reassemble those pieces (using only rotations and translations, no stretching or bending) into two identical copies of the original ball.

This result is *counterintuitive* because it seems to defy our everyday understanding of volume and space. It appears as though you are multiplying the volume of a solid object, which violates the basic principles of geometry and conservation of mass.

Here's why this paradox occurs:

6.1 | Non-measurable Sets

- The paradox hinges on the existence of *non-measurable sets*—sets that do not have a well-defined volume or measure in the conventional sense. These are sets that cannot be assigned a consistent size using traditional methods of measure theory, and they can be constructed using the Axiom of Choice, a powerful but somewhat controversial axiom in set theory.

- The pieces in the Banach-Tarski Paradox are not "regular" geometric objects like cubes or spheres. They are *non-measurable sets* that can be split in ways that don't correspond to our usual understanding of volume. Because they don't have a consistent measure, the usual rules about adding volumes do not apply.

6.2 | Uncountably Infinite Pieces

The paradox involves dividing the ball into *uncountably infinite pieces* and then reassembling those pieces into two identical balls. These pieces cannot be described in simple geometric terms—they are more abstract, and their properties are based on the *mathematical concept of sets* rather than physical objects.

Since the pieces involved are uncountable and non-measurable, the idea of "size" becomes very slippery, and the usual rules of geometry break down. The reassembly doesn't follow the intuitive rules we apply to everyday objects, leading to the counterintuitive result of duplicating the ball.

The paradox raises the question of whether it's meaningful to work with point-sized objects (such as the "bricks"). In physical terms, we can't actually construct objects with zero volume or size. However, in pure mathematics, the notion of point-sized objects, or points, is well-defined.

The Banach-Tarski Paradox illustrates how uncountable sets and non-measurable sets can lead to strange results that defy our intuition about space and volume. When working with point-sized objects, or when dividing a space into an uncountably infinite number of pieces, traditional ideas of measure and volume no longer apply in the same way, opening up a realm where mathematical abstractions behave in ways that seem impossible in the physical world.

7 | Neutrosophy's Perspective on Infinity

Neutrosophy, on the other hand, offers a radically different take on infinity. Whereas Kant and Hegel treat infinity as a transcendental concept or a dialectical process, and Cantor views it as a mathematical construct, neutrosophy regards infinity as an experiential phenomenon that embodies uncertainty, ambiguity, and multiplicity.

In neutrosophy, infinity is not a single, unified concept but exists in multiple forms: small infinities and large infinities are both present but are understood through their interrelationships, contradictions, and neutral zones. Neutrosophy contends that infinity cannot be grasped as a whole because it inherently involves multiple, sometimes contradictory, perspectives.

The concept of neutrosophic infinity introduces *uncertainty* into our understanding of infinite sets, suggesting that rather than being distinct, sets or spaces may overlap, blend, or shift into one another. For example, the boundary between a "finite" and "infinite" space might not be as clear-cut as traditionally thought. A set might be 70% finite, 20% infinite, and 10% contradictory—acknowledging the reality that our perception of the infinite is always in flux, oscillating between different states and levels of awareness [13].

This fuzzy logic approach to infinity allows us to embrace the paradox of infinity's vastness without being constrained by the dichotomous thinking of either finite or infinite. In neutrosophy, the infinite is not bound by the constraints of logic but is a space where multiple, sometimes contradictory possibilities coexist.

7.1 | Neutrosophic Infinity: A Definition

Neutrosophic infinity can be defined as an *experiential, multidimensional, and inherently contradictory concept* of the infinite that transcends traditional dichotomies like "finite" and "infinite."

Unlike the classical mathematical approach, where infinity is treated as a specific, static, and potentially measurable quantity (whether countable or uncountable), neutrosophic infinity acknowledges the simultaneous coexistence of various states, levels, and forms of infinity.

It is fluid, context-dependent, and non-absolute, allowing for intersecting and overlapping infinities that may vary based on perception, logic, and existential circumstances.

7.2 | Key Characteristics of Neutrosophic Infinity

7.2.1 | Multiplicity and Interconnection

Neutrosophic infinity rejects the traditional view that infinity must be singular or uniform [14]. Instead, it proposes that there are multiple infinities, each potentially overlapping, coexisting, or transforming into one another. These different infinities are not isolated; they are understood in relation to each other and to the finite. For example, the infinite possibilities between two points on a number line are not merely extensions of the finite; they exist in a space where their boundaries and connections are fuzzy and dynamic.

7.2.2 | Contradiction and Uncertainty

Neutrosophic infinity integrates contradictory elements within itself. It allows for the coexistence of seemingly opposing properties (e.g., “infinitely large” and “infinitely small”) and sees these contradictions as inherent to the concept of infinity itself. This aligns with neutrosophy’s core principle that truth can be partial, contradictory, or undefined. Therefore, infinity may simultaneously appear as both boundless and constrained, depending on the context.

7.2.3 | Non-Absolute and Contextual

Infinity in neutrosophy is contextual, meaning that its characteristics shift depending on the framework in which it is considered. In the realm of mathematics, for example, the infinite might be represented as a set that expands without end. But in the realm of experience, infinity could be felt as an eternal process or as an emotional or spiritual experience that evolves continuously without a final endpoint. Neutrosophy emphasizes that infinity cannot be confined to one specific definition or framework; it is relational rather than absolute.

7.2.4 | Fuzzy Logic and Fluid Boundaries

Instead of treating infinity as a well-defined, measurable concept, neutrosophy embraces the fuzzy logic approach, where the concept of infinity is inherently indeterminate. The “boundaries” of what constitutes infinite sets or processes are not rigid. There is a gradual continuum between the finite and the infinite. For example, a set might be 70% finite, 20% infinite, and 10% contradictory, reflecting the complex interplay between what we perceive as finite and infinite [15].

7.2.5 | Experiential and Existential

Neutrosophic infinity also takes into account human experience and perception. Just as Kant viewed infinity as a transcendental idea tied to human cognition, neutrosophy integrates the subjective and existential aspects of infinity into its framework. Infinity is not simply a mathematical abstraction but a living, evolving experience that can be felt, explored, and processed at both intellectual and emotional levels. It is the infinite unfolding in time, space, consciousness, and being.

7.3 | Practical Example: The Infinite between Zero and One

In traditional mathematics, we might consider the interval between zero and one as containing *countably infinite rational numbers* (fractions) or *uncountably infinite real numbers*. But from a neutrosophic perspective, this interval does not simply contain infinite numbers; rather, it embodies multiple layers of infinity, each of which can be understood differently depending on the *perspective* or *framework* you adopt. The boundary between the “finite” part of the interval (the numbers close to zero) and the “infinite” part (the infinitely many decimal places) is not sharply defined. Instead, it is fluid, overlapping, and continuously changing as we zoom in on smaller and smaller scales or shift our focus.

8 | Conclusion: Toward a Dynamic Infinity

In contrast to traditional views of infinity that attempt to categorize and limit the infinite, neutrosophy suggests a view of infinity as something dynamic, ambiguous, and deeply interconnected with the finite. Neutrosophy's infinite is not merely abstract or theoretical, but fuzzy, malleable, and relational—an infinite that cannot be confined to a single idea, structure, or system, something to be fully comprehended but something to be experienced, explored, and integrated into our understanding of the world. In this way, neutrosophy does not simply offer another definition of infinity but invites to live with infinity as an open, evolving concept.

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Ethical Approval

This article does not contain any studies with human participants or animals performed by any of the authors.

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