

Challenging the Law of Identity: A Physicalist Perspective on the Fluidity of Concrete and Abstract Objects

Introduction

The concept of identity has been a fundamental issue in philosophy for centuries, with many different perspectives and theories proposed to explain it. In recent years, physicalism has emerged as a prominent framework for understanding identity, emphasizing the importance of physical substrates or processes in determining an object's identity. This essay argues that, from a physicalist perspective, in a universe where time and space exist, the law of identity does not hold for concrete or abstract objects, including those in fixed spatiotemporal contexts. To build a strong foundation for this argument, we will first establish a comprehensive definition of identity, encompassing an object's physical properties and relations to other things and events.

Defining Identity: A Comprehensive Approach

To develop a thorough understanding of identity, we must consider an object's identity as a list of all true factual statements about that object. Keep in mind these "factual statements" are not observer-dependent. Instead, they are a priori truths about the object and its relations in the universe, i.e., the states of affairs are true whether or not stated. (This aligns with a common physicalist assumption: that there is a physical reality that exists independently of our knowledge, perceptions, or descriptions of it.) This comprehensive list includes the object's physical properties or location and its relations to other things or events. By adopting this thorough and accurate definition of identity, we recognize that an object's identity is more than a static set of attributes; it is an intricate web of relationships, properties, and processes that unfold

over time. This recognition lays the groundwork for our argument that the law of identity does not hold for concrete or abstract objects, even those in fixed spatiotemporal contexts.

1. The Law of Identity and Concrete Objects

While it may seem obvious, it is worth noting that the law of identity, which states that a thing is identical to itself, does not apply to concrete objects. This is because tangible objects change over time, and their spatiotemporal location changes, making their identity not fixed but subject to change. This point serves as a necessary setup for further discussion on the limitations of the law of identity for concrete and abstract objects.

2. Abstract Objects and Physical Substrates

From a physicalist perspective, we can argue that an abstract is actually concrete, and all concrete objects are in flux. Abstract objects, such as ideas or mathematical concepts, are often considered non-tangible and lacking spatiotemporal locations. However, in a physicalist universe, abstract concepts always require a substrate for their existence, whether biological or artificial. As these substrates change over time, so do the abstract objects that depend on them since they are contingent upon the underlying physical relationships and processes.

While alternative perspectives, like structural realism and mathematical Platonism, emphasize the fundamental nature of relations or the existence of mathematical entities independent of the physical world, it is essential to acknowledge that abstract concepts never exist entirely independently of a physical context. Even in these perspectives, the identity of abstract concepts is influenced by changes in the underlying material systems, which adds new traits to the abstract

object's identity, highlighting the complex and nuanced relationship between abstract concepts and substrates, as well as the dynamic nature of their interdependence.

3. Objects in Fixed Spatiotemporal Contexts and Quantum Fluctuations

Now, we come to the more intriguing part: Even for objects fixed in spatiotemporal contexts, the law of identity may not hold. An object's identity is not simply a matter of its physical properties or location but also its relations to other things or events. From a physicalist perspective, the list of all things true about an object at a specific time can change in retrospect when a future event occurs. This change is a priori true and not dependent on an observer. It's a more dynamic and interconnected conception of identity that's constantly being redefined as new events unfold.

This might seem counterintuitive, but it underpins our argument that an object's identity is not static.

An object's identity may be determined by a list of all factual statements about that object, including information about its relations to other objects or events. Therefore, an object's identity is not fixed but rather subject to change as new relations and facts arise in the future, which, once they occur, retroactively add a new true statement to the original object's identity. E.g., "Object A exists in a universe where an instance of something occurred in the future at a specific spatiotemporal location."

To further clarify this point, consider the concept of the light cone in general relativity, which illustrates how time moves forward, and events that may be destined to happen still haven't happened until they happen. This perspective contrasts with the block universe misconception,

which posits that the universe's entire history exists simultaneously. By emphasizing the light cone and the forward progression of time, we can better understand why an event that takes place in the future changes the identity of the item in the original spatiotemporal context. This highlights an object's identity's dynamic nature and dependence on unfolding relations and events. Furthermore, it reinforces the argument that the law of identity may not hold even for objects fixed in spatiotemporal contexts.

A Novel Physicalist Perspective on Identity

While this paper engages with and builds upon ideas from various philosophical traditions, its primary goal is to offer a novel physicalist perspective on identity. By emphasizing the dynamic nature of objects and their relationships within the universe, this argument seeks to extend and enrich the ongoing philosophical discourse on identity.

To convey that a future event changes the identity of an object fixed in a spatiotemporal context, here's a possible way to represent my premises and conclusion:

Premise 1: $\forall x, t1, t2 ((\text{Concrete}(x) \wedge \text{Instance}(x)) \rightarrow \neg(\text{I}(x, t1) = \text{I}(x, t2)))$

In plain English, this premise states that the law of identity does not hold for instances of concrete objects. If something is tangible, persists in some fashion through time, and is made of energy and matter, it is in flux.

Premise 2: $\forall x ((\text{Abstract}(x) \wedge \text{Instance}(x)) \rightarrow \exists y (\text{Concrete}(y) \wedge \text{SubstrateOf}(x, y) \wedge \text{EnergyOf}(x, y)))$

This "physicalist" premise states that the law of identity does not hold for instances of abstract objects. Abstract objects, such as ideas or concepts, rely on physical substrates or processes for their existence. Therefore, their identity is not separate from their material substrate. It, too, is tangible, persists in some fashion through time, and is made of energy and matter; it is in flux.

Premise 3: $\forall x, y, t1, t2 ((\text{Concrete}(x) \wedge \text{Concrete}(y) \wedge x \neq y \wedge \text{FutureEvent}(y, t2)) \rightarrow \neg(\text{I}(x, t1) = \text{I}(x, t2)))$

This novel premise states that even for objects fixed in space and time, the law of identity may not hold. Instead, an object's identity relies on its physical properties or location and its relations to other things or events in space and time.

Formal Conclusion: $\neg \forall x, t1, t2 ((\text{Concrete}(x) \vee \text{Abstract}(x)) \rightarrow (\text{I}(x, t1) = \text{I}(x, t2)))$

In plain English, the conclusion states that the law of identity does not universally hold for concrete objects. In other words, it is not the case that for every concrete object, the object's identity remains the same across different points in time. This conclusion follows from the premises that highlight the fluidity of tangible things, the dependence of abstract objects on physical substrates or processes, and the influence of an object's relationships to other objects or events in determining its identity.

Takeaway:

The argument presented here challenges the traditional understanding of the law of identity. It emphasizes the importance of physical substrates or processes and the dynamic relationships between objects and events in determining an object's identity. The hope is to encourage readers

to question the supremacy of "A is A" and to gain a more thorough and accurate definition of identity and its implications for physics and the philosophy of physics. Furthermore, a stable understanding of identity can have broad applications in various fields that require a consistent and reliable definition of identity, such as biology, chemistry, and computer science. By embracing a more comprehensive and nuanced perspective on identity, we can enrich our understanding of the world and further the ongoing discourse on this fascinating topic.

Acknowledgement:

I want to acknowledge the contributions of various philosophers whose works have inspired and informed my thinking in writing this essay. Firstly, I draw inspiration from Heraclitus, who famously asserted that "you cannot step into the same river twice," emphasizing the fluidity and dynamic nature of the world. Additionally, the insights of Immanuel Kant and Ludwig Wittgenstein regarding the nature of objects and language have provided valuable context for my exploration of the concept of identity. Furthermore, I would like to recognize the importance of physicalism as a framework for understanding the relationship between objects and their physical substrates or processes, as well as the work of philosophers such as Hilary Putnam and David Lewis, who have explored the concept of identity in a physicalist context.

Finally, I appreciate the contributions of Aristotle and Bertrand Russell, whose ideas about the law of identity and the set of all factual statements have influenced my thinking about identity in this essay. While I did not specifically reference any individual philosophers in the text, their ideas and perspectives have played an essential role in shaping my thinking on this topic.