

The Bundle Theory of Universals

The debate surrounding universals and particulars stands as a cornerstone of metaphysical philosophy. Universals, understood as shared properties or qualities, are pitted against particulars, the individual entities that manifest these properties. This fundamental dichotomy prompts questions regarding the ontology of all entities: Do universals exist independently, or are they wholly dependent upon particulars? Bundle Theory emerges within this discourse as a nuanced solution. Unlike Nominalism, which denies the existence of universals altogether, or Standard Realism, which posits their independent existence alongside particulars, Bundle Theory presents a distinct proposition: only universals exist, and particulars are essentially composite bundles of universals. These bundles are unified by the principle of *colocation* or *copresence*, wherein universal properties coexist within the same spatial or locational framework. This theoretical framework offers a straightforward account of the relationship between universals and particulars, obviating the need for an elusive substratum underlying the objects we observe. In this essay, we explore the intricacies, implications, and potential challenges Bundle Theory posits in deciphering the fundamental ontology of reality.

Bundle Theory stems from a criticism of the nature of particulars offered by Nominalism and Realism. The Bundle Theorist points out that the existence of particulars evokes a sense of mystery due to the human tendency to interact with and measure universal properties rather than any underlying substratum. Bundle Theory addresses this by proposing that what we perceive as individual objects are sums of their universal properties, appealing to Occam's razor by offering a more straightforward and economical account of reality. These favorable intuitions and applications of philosophical principles to fields like particle physics lend support to Bundle Theory as a compelling metaphysical framework.

Despite its utility, Bundle Theory confronts significant challenges regarding contingent properties and the dynamic nature of change. The problem of contingent properties arises from the observation that particulars exhibit varying properties depending upon their interactions and circumstances, seemingly challenging the notion of fixed bundles of universal properties. However, counterpart theory offers a robust rebuttal. Counterpart theory allows for the imagining of alternate worlds where particulars possess different bundles of properties based on the diverse contingent factors shaping their environment and evolution. Critics may raise concerns about the adequacy of counterpart theory as a rebuttal: while counterpart theory allows for the imagining of alternate worlds, this approach may rely too heavily on speculative scenarios and hypotheticals. They contend that the practical application of counterpart theory in addressing contingent properties within the context of real-world phenomena may be limited.

Similarly, the problem of change poses a challenge as particulars undergo temporal transitions, suggesting a dynamic nature that is incompatible with the idea of fixed bundles. To address this challenge, Bundle Theory leans on Perdurantism. By positing that entities exist in time as a continuum of three-dimensional slices, or temporal parts, Perdurantism acknowledges the dynamic nature of reality and allows for the accommodation of changing bundles of properties. Unlike Endurantism, which views entities as enduring through time with all properties existing simultaneously, Perdurantism recognizes that properties are not necessarily static between temporal slices. Instead, particulars may exhibit different sets of properties at different points in time, reflecting the dynamic aspect of change inherent in the temporal progression of entities. However, critics may question how Perdurantism can account for the persistence of identity and the unity of objects across different temporal slices, particularly in

cases where entities undergo significant transformations or exhibit continuity of properties over time.

The most influential problem faced by Bundle Theory is arguably that of duplicate objects, specifically with regard to Leibniz's law and the Identity of Indiscernibles. Leibniz's Law states that if two objects are in fact the same object, they share all of their properties, whereas the Identity of Indiscernibles states that if two objects share all the same properties, they are indistinguishable and therefore identical. Bundle Theory implies the Identity of Indiscernibles, but this presents a dilemma when considering cases of seemingly identical objects with differences that cannot be ascribed to universal properties. The Bundle Theorist must resolve this dilemma while upholding the important truth of Leibniz's Law.

Take for example two electrons in different orbitals around the same atomic nucleus. Although these electrons may possess different kinetic energies, their occupation of particular orbitals is not considered a universal property, as only a finite number of electrons can occupy any orbital simultaneously. Proponents of Bundle Theory offer two main replies. The first reply posits an *identity property* for the electrons, suggesting that each electron is identical to itself but distinct from others. However, one may counter that this identity property lacks universality as it is not shared with any other particular, thus is merely a fictional label. Alternatively, Bundle Theorists reply that the electrons possess different *relational properties*, such as their distance to the nucleus or contribution to the atom's total energy, which distinguish them from one another within the framework of Bundle Theory. This is a more robust response, except in certain cases in which a system is composed of objects which share the same intrinsic *and* relational properties. Max Black's famous thought experiment of identical spheres further complicates the problem of duplication by proposing such a system.

Black imagines a hypothetical universe containing just two identical metal spheres positioned three meters apart, Bundle Theory faces a challenge reconciling the apparent identity of these objects. Critics often question how Bundle Theory can account for the uniqueness of each sphere's location within its framework. One common response to this challenge is rooted in Substantivalism, which posits that each sphere possesses a unique *locational property*, such as L_1 and L_2 . However, critics argue that this approach presupposes a substantival universe, where locations exist independently of objects. Such a stance raises questions about the universality of locational properties and their compatibility with Bundle Theory's foundational principles.

In an alternate response, proponents suggest that there is one bundle, located three meters from itself. This response attempts to preserve the notion of colocation, emphasizing that the spheres' positions are part of their respective bundles of properties. However, critics point out that this solution challenges the coherence of Bundle Theory's core tenets, particularly regarding the concept of colocation. The idea that a particular bundle can be located at a distance from itself seems to undermine the fundamental premise of colocation, which asserts that all universal properties coexist within the same spatial framework.

A final solution proposed by Bundle Theorists involves the introduction of tropes instead of universals. Tropes are individual instances of properties that need not be shared among objects. In the context of Black's spheres, tropes offer a means of distinguishing between the seemingly identical objects. For example, each sphere may possess an *identity trope*, a *locational trope*, and other tropes unique to its properties. By incorporating tropes into the framework of Bundle Theory, proponents can maintain the coherence of the theory while addressing the challenge posed by Black's spheres. This approach allows for a nuanced understanding of

identity and property instantiation within the context of metaphysical discourse, although it strides away from the structural appeal that Bundle Theory initially offered.

While Bundle Theory faces significant challenges regarding contingent properties, the dynamic nature of change, and the principle of the Identity of Indiscernibles, it remains a viable metaphysical solution. However, additional assumptions of reality must be made. Namely, counterpart theory, Perdurantism, and Substantivalism or tropes, are used to crutch Bundle Theory; Its simplistic reputation has become disrupted by requirements on other cornerstones of metaphysics. Nevertheless, Bundle Theory combined with these assumptions offers a deep framework for understanding the relationship between universals and particulars. Just as the transition from Newtonian mechanics to Einstein's relativistic universe exemplifies the hidden complexity of reality, perhaps an enriched Bundle Theory will prove to be the strongest foundation for the ontology of reality.