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ARISTOTLE'S PRIME MOVER AND ITS SIGNIFICANCE IN MODERN CONTEXT

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Abstract: The Prime Mover, as a god-like principle in Aristotle's *Metaphysics*, remains widely debated among contemporary scholars. In the text, it is not as elaborated when compared to the four causes of action; though, the prime mover serves as the first cause of all existence, explaining the origin and nature of reality itself. Aristotle introduces it not as a religious deity, but as a logical necessity to avoid the problem of infinite regress, the impossibility of something causing itself, since it would have to precede its own existence. Applied to the social realm, this implies that individuals cannot be the efficient cause of their own existence, nor can phenomenon such as the law of gravity or the existence of the world be self-caused. In modern discourse, critics challenge the relevance of the Prime Mover, arguing that science, though rooted in Aristotelian physics, can explain many phenomena once thought unexplained, and that the issue of infinite regress is potentially solvable. Consequently, some regard the concept as obsolete or irrelevant in modern context. This essay examines the contemporary role of the Prime Mover and concludes that it remains relevant precisely because not only because of heavy dependence from influential Christian theology exemplified by Thomas Aquinas but also that scientific truth is provisional, and many phenomena persist beyond current explanation.
Keywords: Metaphysics; Prime mover; Causality; Science; Logic

1 INTRODUCTION

The prime mover, as described by Aristotle in his *Metaphysics*, is the ultimate force of motion, drawing everything toward its purpose without itself moving or changing. In this way, it is difficult to visualize compared to Aristotle's more commonly known four causes: material cause, formal cause, efficient cause, and final cause. The Prime Mover is pure energeia (actuality) with no dynamis (potentiality). Standard causes involve change from potential to actual (e.g., bronze to statue). The Prime Mover, being purely actual, cannot undergo such change [1].

Aristotle justifies the existence of a prime mover by relying on astrological observations. He cites an anecdote from a famous astrologer in his writing, stating that the heavenly spheres (which contain the planets and fixed stars, nested around each other and revolving around the Earth) only undergo changes in the sense of cyclical motion, and are neither generated nor destroyed. In this way, astrology can suggest that the movement of the spheres, or what we now call planets, is the fundamental material cause of any action. For example, the Earth is the material cause of an earthquake or rain, while the orbital motion is the material cause of sunrise and sunset, both of which lead to other actions. However, Aristotle identifies a lack of a cause for the orbital spheres. If each sphere is moved by the push of its outer sphere, there would be no cause of movement for the outermost sphere . To address this situation, which this essay will soon explain as infinite regress, the prime mover is posited as the ultimate cause of actuality, or the sphere's drawing and guidance toward its purpose of orbiting itself [2].

However, modern science has long challenged the concept of the prime mover, using the Big Bang theory to explain the actuality of orbital spheres, which Aristotle's justification relied upon. The prevalence of modern science, coupled with the rising popularity of physical causality, has led to the neglect of discussions surrounding the prime mover, a figure upon which many historical religions and bodies of work were based, and the challenges remain unclear and discreet. Therefore, this essay attempts to provide a brief understanding of Aristotle's prime mover and its significance in religion, then assess the challenges posed by modern scientists to summarize areas where each argument is more grounded or lacking further justification.

2 THEOLOGY AND THE FIRST MOVER

As seen in *Physics* and many other works, Aristotle largely rejected the prior ancient Greek myths and the anthropomorphic personalities of God found in the writings of Plato, Socrates, and others. However, the unmoved mover was a divine principle recognized by Aristotle, exemplifying pure actuality, immateriality, eternality, and pure thought. Interpreting directly from *Metaphysics*, the four-cause theory supports the claim that Aristotle minimized divine capacities in his justification of causality while including the prime mover to resolve the unexplained cosmic origin mentioned above [3]. Even with this god-like figure, Aristotle was careful to distinguish the prime mover from other natural and non-natural

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causes in terms of change, reminding the reader that the realm witnesses change from potentiality to actuality, while the prime mover is pure actuality and, thus, not a deliberate or indifferent cause [4].

Nevertheless, Aristotle's concept of the prime mover was adopted by Thomas Aquinas as the first cause of motion and change in his *Five Ways*. Aquinas concluded that the first mover, being of pure actuality and without beginning, is God. While his interpretation helped consolidate the justification for the necessity of a prime mover, Aquinas went further to equate the role of the prime mover with the specific God of Christian revelation, as described in later works like *Summa Theologica [5].* Aquinas's arguments, originally intended to consolidate Christian origins by justifying the existence of God in the universe and quoting Aristotle's reasoning, have resulted in a prevalent equivalence between the prime mover and God [6].

In this way, the idea of the prime mover, originally a purely philosophical notion as cast by Aristotle, being pure and self-contemplating, has become a widespread theological concept and spiritual belief. This transformation entails that the challenges the concept has received may also affect the foundations of theology, especially Christianity. On one hand, this perspective identifies a lens through which the concept of the prime mover is still relevant today. On the other hand, this intimate link to popular religion may render widespread beliefs more vulnerable to scientific scrutiny, while scientific justifications face severe backlash from theological faith. Some examples of this controversy will be discussed in the following explanation of the conflict between infinite regress and modern science and physics.

3 INFINITE REGRESS

In general, the concept of infinite regress refers to an endless chain of reasoning or causation where each step requires justification from a prior step, with no starting point. The anecdote of orbital planets serves as a basic example of the issue of infinite regress; the same can be applied in metaphysics. As Aristotle suggests, if one thought is caused by another, the origin of the causation must be found to explain the validity of every subsequent idea. The prime mover addresses the fallacy of infinite regress by proposing a first and ultimate element in the entire sequence. Infinite regress is significantly important as it challenges prevailing subjects like foundationalism and relates to core areas of philosophical thought, including epistemology, metaphysics, and the question of free will [7].

The prime mover is, in simple terms, the eternal and immutable figure that serves as the original cause of the endless chain. It is thus highly idealized and represents pure actuality, which equates to a lack of potential existence. Prior scholars predominantly view the prime mover as a singular figure adapted by Aristotle to rationalize his theories of causality. However, justifications for the existence of the prime mover are virtually absent, both in Aristotle's work and in modern interpretations, making it vulnerable to challenges from modern science and physics [8].

For the challenge to be valid, science must not only demonstrate the deficiencies in the concept of infinite regress but also provide an inductive proof that can fully explain the origin of motion. Moreover, science would need to establish that its original cause possesses potentiality, meaning that it should be able to explain the cause of motion prior to its own existence [9]. The following section examines several theories related to this idea and attempts to assess the extent to which they construct a strong argument against the necessity of a prime mover.

4 SCIENCE AND PHYSICS

Science, to some extent, provides empirical evidence for the finite origins of certain physical phenomena, including the orbital planet myth cited in Aristotle's *Metaphysics*. This demands explanatorily potent theories that do not require endless chains of justification.

The leading empirical finitude is the Big Bang theory. Drawing from the cosmic microwave background, it states that space, time, matter, and energy all originated from an incredibly hot, dense point (singularity) about 13.8 billion years ago. In this way, the Big Bang is considered the physical origin of time and space, or "time zero," theoretically giving birth to all motion and actions that follow, such as the formation of solar systems and their orbital planets. Since no time and space existed before the Big Bang, it did not need a prior cause but exists as the origin of the endless chain of causality, as the empirical evidence explains.

Though the Big Bang model is widely accepted and grounded in evidence, several independent assessments question whether its existence denies the notion of infinite regress. First, mathematically, the Big Bang theory cannot be perfectly established. Minor discrepancies exist, such as the slight disagreement between different measurements of the universe's current expansion rate (known as the Hubble tension). Thus, its validity is still awaiting confirmation, and the claim should be viewed with skepticism.

Second, the fundamental basis of physical scientists, rather than philosophical skeptics, is to claim that the Big Bang's "time zero" is a relative point in time based on the limits of present technology and research capacity [10]. This raises the potential that future discoveries could suggest earlier origins, challenging the assertion that the Big Bang is the absolute original cause of everything. Especially regarding dark matter, a domain relying on human speculation should not be held as solid as the immutable and immovable God.

Finally, there is a more general principle that the Big Bang theory can never be pure actuality, due to inherent theoretical limits of the model. For the Big Bang to be considered the original cause and to replace the first cause proposed by Aristotle, it would need to be completely perfect, fully realized, and possess zero potential for change, something that is notably impossible, as the Big Bang theory is rooted in existence and the material realm.

There are also more generic and harder-to-challenge scientific objections to the concept of the prime mover. One of these objections is the search for fundamental principles: foundational, irreducible laws and particles that do not require further explanation ad infinitum to be valid. Ultimately, the nature of science, as noted by many philosophers, can counter the challenge posed by infinite regress. Science deals with the physical, observable universe. Many arguments against infinite regress assert that an "actual" infinity cannot be instantiated in physical reality, even if it is possible as an abstract mathematical concept. Scientific models often reflect this constraint, working within finite, quantifiable parameters.

Moreover, referring to Aristotle, the original cause must justify itself and precede its existence; it has to be pure actuality. This has been explained above as being physically non-existent and highly idealized. These principles are ultimately beyond the scope of scientific explanation, as they are grounded in existence, and Aristotle claims that everything in the world has potentiality, the ability to change and not remain the same. Thus, nothing can be the original cause of itself and others.

In this way, although the idea of replacing the necessity of a prime mover with the Big Bang, which scientists claim originated time and space, is intriguing, the argument merits further investigation. However, when objectively compared to Aristotle's principle of the first cause, loopholes and more extended uncertainties become apparent within science and physics, hindering a complete explanation of actual causality. Some physics have again proven the exclusivity of the prime mover as the original cause [11].

5 AN ADDITIONAL ROLE OF THE UNMOVED MOVER

Though most prominently discussed in the context of infinite regress, the unmoved mover is theorized to serve another role today, one that is often referenced in religion. This role is as the ultimate object of admiration. All things in nature, including humans, strive to imitate its perfection and actualized state in their own unique ways. This "love" or "desire" is what drives the eternal motion of the cosmos [12]. Therefore, its existence can be justified not only as a solution to infinite regress but also as a constant and eternal force that causes the general order of nature and the Earth, such as the changing of seasons and the cycle of generations [13].

Later, medieval philosophers and theologians further transformed this concept by identifying the unmoved mover with the personal, caring, and omnipotent God of the Bible [14], and the God actively involved in creation and providence, potentially deciding or influencing personal fate. This interpretation underscores the significance of the unmoved mover as the force that changes potentiality into actuality without being moved itself. The god-like interpretation helps people understand the unmoved mover's relevance beyond merely initiating all causes; it embodies the active and constant aspiration that drives our ongoing causality.

6 CONCLUSIONS

In conclusion, Aristotle's conception of the prime mover holds significant relevance in modern contexts as both an indisputable solution to the problem of infinite regress and a representation of the constant aspiration that evokes motion and causality in nature. This significance is also reflected prominently in religions such as Christianity, allowing the concept to withstand challenges posed by empirical scientists and physicists. Thus, this essay highlights the modern importance of investigating Aristotle's often-neglected topic: the prime mover—and identifies potential gaps for future research regarding this subject.

COMPETING INTERESTS

The authors have no relevant financial or non-financial interests to disclose.

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