

Reconsidering the Category of "Matter" in the Era of Digital Intelligence based on the Marxist View of Practice

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Abstract: The category of "matter" serves as the foundational existence of the materialist theoretical system. Marxism achieves the thoroughness and developmental nature of materialism precisely through the innovative development of the concept of matter. Based on practice and incorporating dialectical thinking, it emphasizes the dialectical unity of subject and object, matter and consciousness, which is key to Marxism's grasp of the material category. In the era of digital intelligence, understanding the "material" category requires grounding in digital practice, grasping the relationship between the concept of matter and its concrete forms, and dialectically examining the changes and permanences of material forms and attributes.

Keywords: Matter, Practice, Dialectics, Digital Existence.

1. Introduction

The category of "matter" serves as the foundational existence of the materialist theoretical system. However, philosophers from different historical periods hold varying understandings of "matter," making "how to define the category of matter?" a crucial criterion for distinguishing different schools of materialism. From the developmental trajectory of philosophical history, the comprehension of the matter category is closely linked to the advancement of productive practices and the progress of science and technology. Today, non-physical existences such as digital information, digital avatars, the internet, and the metaverse pose challenges to "material ontology," necessitating theoretical innovation in materialism to explain new phenomena and clarify emerging issues.

2. The Evolution of the Material Category in the Long River of Materialist History

In the history of Western philosophy, the category of "matter" has evolved from ancient naive materialism to modern metaphysical materialism, reflecting humanity's shift from empirical conjecture to scientific verification in understanding the "origin of the world." This transition clearly highlights the divergence between the methodologies of natural science and philosophy, providing fertile ground for Marxism to reframe the concept of "matter."

2.1. Ancient Naive Materialism: Seeking the Origin of All Things through Empirical Intuition

Although ancient naive materialists did not directly propose the category of "matter," they viewed the transformation of all things as the combination and disintegration of some original substance, whose "original substance" conception contained clear attributes of "objective reality." The primordial basis and cause of all things were the focal points of early philosophers, and the "original

substance" was characterized by eternal existence, being neither generated nor destroyed. For instance, original substance conceptions such as "water," "fire," "air," and "atom" clearly exhibited material attributes.

Overall analysis: On one hand, ancient naive materialism sought unity from multiplicity, and its answer to unifying the world through "things" carried strong speculative qualities, marking a distinct progressive significance in the history of philosophy. On the other hand, due to the limitations of their era, its ideological constraints were also very evident. First, the conjecture of "original substance" was primarily based on empirical observation, leading to the reduction of "original substance" to a specific material form, which inevitably resulted in oversimplification. This can be seen in the diverse conjectures of "original substance" among early philosophers. Second, regarding the "combination" and "disintegration" of original substance as the cause of transformation in all things amounted to denying the emergence and disappearance of new entities—that is, denying the possibility of world development. Aristotle, while summarizing early philosophers, remarked: "All things are composed of it (i.e., material original substance), all originate from it, and ultimately revert to it... The substratum is eternal, so nothing comes into being or perishes." [1].

2.2. Modern Metaphysical Materialism is Grounded in the Natural Sciences, Investigating the Fundamental Nature of the Natural World

Bacon's experimental observations and inductive reasoning pointed the way for the development of modern natural science: based on scientific experiments, it sought to explore the essential logic behind nature and construct a rigorous theoretical system. Specialized experimental instruments and equipment (such as microscopes and telescopes) provided new tools for humanity to observe the world, greatly expanding the scope of observation. By delving into the microscopic structure of objective things to explore fundamental particles and their operational logic, it aimed to explain the formation and transformation of all things. From

the workings of the universe to the structure of the human body, natural science offered more accurate answers. Metaphysical materialism, grounded in natural science, evolved from the "atomization" of the material category to the "mechanization" of motion logic. While it transcended the unprovable conjectures of naive materialism through experiments, formulas, and other means, it also rendered its understanding of the material category one-sided. First, the philosophical category of matter does not equate to "matter" in the field of natural science, as the concrete and microscopic "natural reality" cannot encompass the "objective reality" of the material world. Second, the principles of modern natural science struggle to effectively explain human society, as the operational logic of microscopic particles cannot account for how human civilization develops within social relations. In short, metaphysical materialism lost its speculative core within the logic of natural science.

3. The Innovative Development of the Material Category in Dialectical Materialism and Historical Materialism

Marx and Engels innovatively developed materialism, which includes a groundbreaking advancement in the category of matter. In terms of breadth, Marxism expanded the natural understanding of "things" by old materialism to encompass the realm of human society, thereby ensuring the thoroughness of materialism; in terms of depth, Marxism examined the category of "matter" from the perspective of dialectics, relying on human material practical activities, thus safeguarding the developmental nature of materialism.

3.1. Grasping the Two Dimensions of the Material Category: Philosophical Speculation and Productive Practice

Firstly, unlike the old materialism which focused on understanding matter at the level of "initial form" and "microstructure", Marxism emphasizes grasping the category of matter from the "common attributes" of all things in the world, which is a manifestation of its philosophical speculation. Things and substances are nothing but the sum of various things, and the concept can only be grasped from this sum. This 'sum 'is not a' sum ', but a' commonality 'that thinking can grasp [2]. Objective reality is the common property of matter. Objective reality is first manifested in its independence, that is, it exists without relying on human consciousness; Secondly, it is reflected in people's consciousness, and with the development of human practice, people's grasp of this category will continue to deepen. Secondly, unlike Aristotle, Kant, Hegel and others' understanding of practice, Marxism focuses more on material production practice, especially grasping the essence of the world in practical activities, which is a manifestation of its practical dimension. Based on this, Marxism's understanding of "matter" breaks through the traditional natural attributes and extends it to the field of human society. The understanding of "matter" not only emphasizes sensory existence, but also emphasizes grasping its essence in practical activities and their relationships. Marxism, for the first time in the history of philosophy, unified theory with reality, practice with production based on material production, and thus unified nature, human society, and human consciousness with matter, implementing materialism to the

end. Based on the practice of material production and using speculation as a form to grasp the category of "matter", it not only overcomes the speculative nature of old materialism and the mechanical nature of metaphysical materialism, but also opens up new development space for materialism [3].

3.2. Accurately Grasping the Category of "Matter" Requires Adhering to Dialectics

Marx pointed out in his "Theses on Feuerbach" that "the main drawback of all previous materialism (including Feuerbach's materialism) was that it understood objects, reality, and sensibility only in their objective or intuitive form, rather than treating them as sensory human activities, as practice, and not from the perspective of the subject." In short, old materialist philosophers always understood the world (mainly the natural world) as observers, but never truly saw that humans participated in and changed the world as subjects.

Dialectically grasping the category of "matter" is an inherent requirement of practical dialectics. Objective reality is the 'common attribute' of the Marxist 'material' category, but truly understanding this category requires grasping from the dialectical unity of common attributes and specific forms (i.e. commonality and individuality), and from the dialectical unity of matter and consciousness. These two dialectical relationships are not dialectics in the mind, but practical dialectics based on the unity of subject and object. All the intuitive or mechanical features of the understanding of "matter" in old materialism are precisely due to the separation of the relationship between the subject and the object. In the old materialism, 'matter is the subject of all change' [4], ignoring the particularity of human beings as material subjects, the result is the dissolution of human true subjectivity.

Human beings are the subject of knowledge, but not the subject of action. The fundamental reason for the fragmentation of old materialism lies in their neglect of the fundamental role of material production practice and the dialectical relationship between objective objects and subjects in material production practice. Firstly, only through the practice of material production can people truly realize the objectivity of the material world, because only through practice can people better understand the world and grasp the independence of the material world that is not subject to human will. Secondly, matter is not an isolated, static, and eternal entity, but an objective reality that constantly changes its form and structure through human material practice activities. This reflects both the intrinsic unity between the object of things and the subject of humans, as well as the intrinsic unity between the commonality of matter and the individuality of things. Therefore, as rational beings, humans are not only the subject of understanding the objective world, but also the subject of driving changes in the objective world. The changes in the material world are by no means irrelevant to humans, but rather the result of their active transformation, and grasping the material category solely from intuition or microstructure will inevitably be negated by new practices [5].

3.3. Based on Practice, Grasp the Material Unity of Human Society and Achieve the Thoroughness of Materialism.

Another result of the detachment of all old materialism (including Feuerbach's materialism) from practical understanding of the world is the incompleteness of materialism: it adheres to materialism in the view of nature,

but falls into the trap of idealism in the view of history.

Marxism points out that human society is a part of the material world and a product of the development of the material world to a certain stage. How is' development 'achieved? Closely related to human characteristics. Human beings have both objective physical existence and conscious spiritual existence, and are an organic unity of matter and consciousness. The interaction between the objective world and human consciousness not only constantly transforms the objective natural world, but also presents obvious and rich spiritual phenomena in human society, promoting the development of human civilization. Therefore, Marx opposed Hegel's idealistic approach of "absolute spirit" supremacy, pointing out that the existence of "spirit" does not negate the material foundation of human society, but rather the development of "spirit" cannot be separated from the objective material world. Firstly, the natural foundation of human society is material, such as natural resources, land environment, population factors, material production methods, etc., all of which exist in a material way and are not subject to human will. All activities carried out by humans on them must be based on respecting objective laws; Secondly, 'spirit' originates from material existence. Although spirit, consciousness, and thinking are important dimensions for human understanding of the world and endow it with unique meaning or value, consciousness, as a function and attribute of the human brain, is essentially a subjective reflection of the objective world. Thirdly, the development of consciousness goes hand in hand with the development of human social history. The emergence of biological consciousness in nature is a long process, but the progress of human consciousness is advancing rapidly, thanks to human labor. It is in the process of objectified labor that people develop true subjectivity and the need for communication, thus actively and creatively transforming the objective world they are in. Marxism grasps the unity of matter and consciousness from practice, explains the basic logic of human social development, neither denies the positive role of human consciousness and spirit, nor reaffirms the fundamental position of matter in nature and human social development, providing a theoretical basis for its materialist conception of history [6].

4. How to Grasp the Category of "Material" in the Era of Digital Intelligence?

From the development process of materialism, it can be seen that the progress of human civilization, especially the development of science and technology, is constantly driving the deepening of materialism. This allows us to clearly see that true materialism is not a rigid dogma, but a constantly evolving worldview and methodology. In the era of digital intelligence, the "objects, reality, and emotions" of human society are constantly changing, which requires a deep understanding of human material activities and relationships.

4.1. The "Change in Form" of Matter in the Era of Digital Intelligence Does Not Negate the Unchanged Core of "Objective Reality"

As mentioned above, "objective reality" is a common attribute abstracted from natural and social existence. So, has the penetration of digital intelligence technology into the natural world and human society changed the material unity

of the world? In the era of digital intelligence, the objective world not only has physical entities, but also digital virtual entities, especially digital virtual entities represented by data and algorithms, which have almost zero occupation of physical space, and some of their motion modes also deviate from the physical laws of nature. Are the "digital virtual entities" such as data elements in the production field, digital traces in the management field, digital partners in the living world, and virtual simulations in the gaming space unified with matter?

On the one hand, the existence of numbers makes material forms more diverse and abundant. In the era of digital intelligence, there are not only intelligent entities occupying physical space; There are more digital virtual entities that exist in the digital space. Data, big models, digital twins, digital humans, etc. have given matter new forms of existence and expanded the range of human perception and sensation. Just as telescopes and microscopes can help people perceive extremely distant or tiny natural existences, digital technology can enable people to perceive forms of existence that were previously unimaginable, such as the social ecology of human-machine symbiosis and the network ecology of virtual and real coexistence. The development of immersive spaces such as digital games and VR (virtual reality) allows humans to break free from the limitations of two-dimensional materials and fully perceive feelings, achieving a dual leap in emotions and values. Overall, some numbers may not have traditional physical forms, but their perceptible and interactive features are unique to the category of "matter". Therefore, the existence of numbers greatly expands the boundaries of matter, and human perception extends from traditional physical forms to new forms of coexistence between physics and numbers [7].

On the other hand, digital entities still possess objective reality, and the core of matter remains unchanged. Marxism requires us not only to grasp the world from sensory objects, but also to grasp the world in sensory activities. Therefore, to grasp the essence of digital existence, we must start from human material production practice. How did digital existence arise and develop? From the development history of computers and artificial intelligence, it can be seen that the development of digital intelligence technology has not only improved productivity, but also liberated people from heavy labor (including physical and computational power); The operation of digital platforms and the circulation of digital goods are all aimed at the convenience and efficiency of human survival and development; The digital virtual space is more like a mirror existence of the real society, and communication remains its important content. Essentially, digital existence, as a new technological expression of social existence, although possessing new forms, structures, and movement characteristics, still belongs to the material aspect of social production and life, with the aim of meeting human material production and life needs [8].

4.2. Grasping the "Material" Connotation of the Digital Intelligence Era from the Unity of Subject and Object

Marx, based on practice, emphasized the interactive relationship between material objects and human subjects, thus breaking away from the "pure object principle" of old materialism and viewing the objective material world as an existence in which humans participate and transform. Therefore, the objective material world has always been in the

historical process of being reflected and transformed by human "practical consciousness". Today, the emergence of digital technologies, AI models, and digital scenes has shown people that humans can not only use natural objects to create new things that do not exist in nature, but even the means of production are becoming increasingly disconnected from nature, giving rise to many illusions. For example, the new technological changes in the world give people a feeling of pure subjective creation, which can easily lead to the illusion of idealism, while the significant role of technology can easily give people the contemporary illusion of "technological determinism".

One of the misconceptions is that humans have become true creators, able to break free from the constraints of natural material materials and create new objects directly through digital logic. The illusion of "subjective consciousness freely creating" greatly enhances the understanding of human subjectivity. Misconception 2: The symbiotic ecology between humans and machines is full of imagination for the development of artificial intelligence. For example, technology has its own independent development logic and can develop independently; Artificial intelligence can possess consciousness, which can bring disasters to humans, but this is actually due to the infinite amplification of the "pseudo subjectivity" feature of artificial intelligence technology. The autonomous learning, human-computer interaction, and "divine prediction" ability of AI have led humans to elevate instrumental existence to subjective existence. The third misconception is that technological determinism attributes the progress of civilization and social development to the level of technological development, technology solving social problems, and technology realizing human freedom [9].

The root of erroneous understanding lies in the disconnection between the subject and the object, and the failure to view the relationship between matter and consciousness from a dialectical perspective. On the one hand, emphasis is placed on human subjectivity, even AI subjectivity, emphasizing the principle of subject first, but the subject and object are not analyzed within the framework of human historical activities, making it difficult to see reality: both human creation and the intelligent development of AI are closely related to human material production and life. The development of digital intelligence technology is based on the material conditions created by previous generations and is premised on the material needs of today's people. Both digital infrastructure and massive amounts of data information are not generated out of thin air. In summary, the new form of numbers is merely a new object form constructed by human subjects on a material basis, and is not a purely subjective creation detached from material reality. On the other hand, regarding "technology" as an objective reality and emphasizing the decisive role of external technology is a contemporary version of mechanical materialism. This mistake lies in placing humans in the logic of technological development, alienating technology from a human tool to a human master, thereby ignoring the fact that technological development is rooted in human practice, that is, the dialectical movement between the subject of humans and the object of things. Therefore, to correctly understand the category of "matter" today, it is also necessary to oppose intuitive or mechanical knowledge and adhere to the principles of dialectics.

4.3. Adhere to the Principle of Practice and Grasp the Development of the "Material" Category in the Era

Marxism emphasizes that the understanding of "objects, reality, and sensibility" should be "understood as the activities of sensory people, as practice," rather than just as objects of cognition. The development of practice determines the development of categories, and the practice of digital intelligent production opens up a new understanding of the material category. Therefore, we need to grasp the new boundaries of "material" in the process of human history.

Firstly, the material foundation of the objective world is deeper rather than thinner. In the composition of the objective world, there are not only traditional material foundations, but also emerging digital materials and material foundations that serve the digital world. On the one hand, the sensory forms of matter are more diverse. New digital practices give rise to new things and create new development opportunities. On the other hand, digital practice still needs to be based on a series of objective material conditions, such as hardware equipment, energy supply, data sources, etc., which are the more intuitive and perceptible material foundations in the digital age.

Secondly, the laws of motion for new forms of matter are still objective. Although digital practice is different from traditional physical laws of motion, it must also follow basic objective laws rather than being determined by anyone's subjective will. For example, digital technology is based on mathematical knowledge, physical knowledge, and computer knowledge, and the logic of these disciplines is objective and not arbitrarily fabricated by humans. Therefore, in the digital age, digital production practice must follow its inherent logic. Human subjective will can only create new things based on following objective operating logic.

Thirdly, the new stage of "objectification" of consciousness does not deny the primacy of matter. Just as Marx understood "matter" ("reality", "sensibility", "object") from "sensory activity", today we also need to grasp the development of "matter" in the new practical activities of humanity. In the history of human civilization, the externalization of human consciousness has gone through three different stages: simple instrumentalization (agricultural society), power mechanization (industrial society), and digital intelligence (intelligent society). Intelligentization means that humans are able to objectify some of their conscious activities into external programs, intelligent agents, etc., which is an enhancement of their autonomous and conscious abilities. But it cannot be denied that the exertion of human conscious initiative does not originate from divine revelation or any objective reason (spirit), but still relies on objective things and aims at the objective needs of humanity. From this, it can be seen that the emerging digital existence is not only a human sensory activity itself, but also a creation of human practical activities, and its essence is still material.

5. Conclusion

Marxism is based on the practice of material production and innovatively develops the category of "material" in the form of speculation. It not only overcomes the intuitiveness and mechanization of old materialism, but also opens up new development space for materialism. This innovative development not only unifies human society in material terms, emphasizing the material existence of human society, but also provides a methodological basis for grasping the "change"

and "constancy" of the objective world. Today, the digitization of "sensitivity, reality, and objects" is constantly emerging, not only presenting intangible and virtual features in form, but also giving people a subjective sense of creation, posing a challenge to materialism in the era. By delving into the practice of digital production and adhering to the dialectical unity of subject and object, we will find that digital objects are still perceptible entities, and their development still follows an objective logic that is not subject to human will, possessing objective reality. The 'digital existence' has a tangible impact on the composition of productivity, human labor forms, and the reshaping of socio-economic structures, and belongs to a new type of 'social existence'.

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