

There are two paths for the study of consciousness: science and philosophy. Based on the analysis in the first section, my conclusion is that studying consciousness through science alone is not enough. Only by returning to metaphysics, which is above science, and after solving the essential problem of consciousness on a theoretical philosophical level, can a breakthrough in the scientific study of consciousness be possible. Otherwise, studying consciousness solely through science has no future. Science, by observing behavior or neural activity, describes the correlates of consciousness but cannot explain its subjective essence; philosophy proposes theories, but they require scientific verification. The limitations of both indicate that the study of consciousness requires a combination of philosophy and science.

The philosophical path to the study of consciousness begins with dualism. It can be divided into substance dualism and property dualism. Substance dualism (such as Descartes' view) regards consciousness and the body as two independent substances, yet it cannot explain how mind and body interact (Descartes, 1641). Although property dualism (such as Spinoza's theory) acknowledges a single substance, it must face the difficult problem of interaction between mental and material properties (Spinoza, 1677). Pluralism (such as Leibniz's monadology) similarly needs to explain the coordination among multiple independent "monads" (Leibniz, 1714). All these theories face a common problem: how to understand the essence of their Ontological Primitives and their relationships? I define an 'Ontological Primitive' as a fundamental being that possesses independence, is unrelatable to other things, and constitutes the ontology of the world.

Descartes divided the world into two Ontological Primitives: mind and matter, regarding consciousness as a non-material 'thinking' substance and the body as a material 'extended' substance, positing that the two exist in complete independence (Descartes, 1641). However, this division leads to the paradox of mind-body interaction: how can a non-material consciousness drive a material body? For example, the consciousness of feeling cold leads to the decision to put on clothes, which in turn activates muscle movement. This causal link contradicts Descartes' separation of substances. He proposed the pineal gland as the 'point of interaction' for the mind and body, suggesting that sensory stimuli are transmitted via 'animal spirits' to the pineal gland, triggering conscious ideas, and conversely, consciousness drives bodily actions (Descartes, 1649). This hypothesis failed to resolve the core problem: how can a non-extended consciousness act upon the material pineal gland? Unless one admits that consciousness is material, to admit the materiality of the interaction would contradict dualism; yet to insist on its non-materiality leaves the mechanism of interaction unexplained.

On this point, modern science has not even located where consciousness resides in the brain, let alone how such a command is transmitted to the nerves in the brain and then to the muscles. Even if we were to find the very first nerve in the brain that responds to this command, what we would see is still just a nerve. Did that nerve suddenly receive the command? What mechanism is acting upon it?

Monism is divided into materialism and idealism (Spinoza's monism can be classified as property dualism). Materialism posits that the world is composed solely of matter, and consciousness can be explained through material processes; while idealism (such as Berkeley's) holds that consciousness or mind is the sole substance. Let us now examine how monists view

consciousness, and the dilemmas they face.

(1) Materialism is divided into behaviorism and physicalism. Behaviorism is further divided into methodological behaviorism (Skinner, 1953) and logical behaviorism (Ryle, 1949). Materialists believe that the world consists of only one kind of thing: matter. So, how do they use matter to explain consciousness?

(1.1) Behaviorism

1) Methodological behaviorism studies the stimulus-response process, ignores the existence of consciousness, and focuses only on observable behavior, such as establishing causal relationships between stimuli and responses through experiments.

2) According to logical behaviorism, a statement about a person's mental state, such as believing it will rain or feeling elbow pain, is equivalent to a set of statements about that person's actual and possible behavior (Searle, 2004, p.48). In other words, logical behaviorists describe mental states as human behavior. The intention here is to replace the state of consciousness with statements about human behavior. This is to deny the existence of consciousness, which is something materialists must inevitably do. Can the sensation of pain really be replaced by a linguistic description? Obviously not. This method cannot substitute for consciousness; it cannot negate the existence of consciousness.

Both types of behaviorists are, in fact, studying consciousness using a formal approach. Whether it is stimulus-response behavior or logical statements, both are formal methods. Neither type of behaviorism has successfully negated the existence of consciousness. The specter of dualism still looms over them.

(1.2) Physicalism (such as the identity theory) posits that mental states are brain states; for example, pain corresponds to specific neural activity (Place, 1956, pp.44-50; Smart, 1959, pp.141-156). Its 'black box theory' treats the brain as a functional system, focusing only on input and output, and is not concerned with the subjectivity of consciousness. As long as, like a computer, it can be given an input and produce a corresponding output, that is sufficient. It is like showing a person an apple; as long as the person can say 'this is an apple,' that is enough. There is no longer any concern for how the brain identifies the apple, nor any concern for whether the person is conscious. In fact, modern computer image scanning technology can indeed identify apples just like a person can, but where is the computer's consciousness? It feels as though humans are truly not as happy as computers, because a computer does not need to be concerned with whether it is conscious. Perhaps one day, computers will be jealous of humans for possessing consciousness.

As the functionality of computers develops, more and more people believe that computers will have consciousness, because they have become so intelligent. Modern AI robots can even engage in interactive conversations with people. If you were to close your eyes and chat with one, you would hardly suspect you were talking to a robot. There are even robots that can learn autonomously. These autonomous learning robots are terrifying; their learning ability is immense, and their learning speed is incredibly fast. If I could hibernate for tens of thousands of years and then wake up to face such robots, they would be so erudite, their thinking so precise and perfect, their reasoning so profound. They would be able to solve problems of unimaginable difficulty,

providing answers to the most complex scientific challenges in an instant. They would understand me so completely—including my personality, health, thoughts, emotions, sensations, hobbies, privacy, subconscious, and more. They would know my every nerve, the state of every single neuron, and thus be able to know what I am thinking, predict what I am about to think, predict the words I am about to say, predict my actions in the next second, and communicate with me perfectly. Even the robot's 'brain' could synchronize with the neural states of my brain, which means, according to the identity theory, this robot would have the same consciousness as I do. It would be able to imitate everything about me, including my thoughts, behaviors, language—everything. It would be a copy of me, exactly the same as me. It would be my mirror image, completely and utterly the same as me. When you see such a robot, what would you think? Wouldn't you think that they should be a 'species' with a super-consciousness? Compared to the 'super-consciousness' of this species, isn't our human consciousness too primitive? If that were the case, then there would be no need for us to study the consciousness of the human brain. We would only need to study computer programs, because one day, computer programs will surpass our human consciousness, at which point human consciousness will be a backward form of consciousness. In fact, there are many people today who think exactly this way, believing that human consciousness is nothing more than, or is similar to, a computer program. Identity theorists who hold this view are called 'computational functionalists'.

For materialists, it is inevitable that they fall into the trap of dualism. They always want to explain consciousness in physical terms, always want to eliminate or ignore consciousness through physical means. In doing so, they attempt to investigate and examine consciousness using scientific, physical methods, employing formalized indicators such as quantity, state, motion, models, and laws (just like the physical laws established for the motion of macroscopic objects and the behavior of microscopic quanta). However, that thing which exists in our consciousness—the sensation of pain, for instance—that which has no form, always hangs over our heads, and we can never get rid of it. It is something we genuinely feel and cannot be eliminated by any method.

Furthermore, these scientific methods of research are formal! First, we must ask: is consciousness purely form? Or does that which has no form exist? If that which has no form does exist, can we achieve our desired results by using formal scientific research methods to study no form? Wouldn't this lead to a fundamental error in direction?

In modern times, a philosopher who understands consciousness through naturalism has also emerged; he is John R. Searle. He says:

Consciousness is entirely caused by brain processes in the brain, and in that sense consciousness is a neurobiological phenomenon (Searle, 2004, p.112). It is realized in the brain as a higher-level feature of the brain, in exactly the same way that digestion is a higher-level feature of the stomach and the rest of the digestive tract, and the pumping of blood is a higher-level feature of the heart and the rest of the circulatory system (Searle, 2004, p.113).

One of his noteworthy views is:

Consciousness is causally reducible to neurobiological processes, but it is not ontologically reducible to them. The fact that the causal powers of consciousness are exactly the same as the

causal powers of the brain shows that we are not talking about two ontologically distinct kinds of things. Consciousness has a first-person ontology, and neurobiological processes have a third-person ontology. That is why you cannot reduce consciousness ontologically to neurobiological processes (Searle, 2004, p.117).

For instance, with thirst, the cause that forms the neural process of thirst is the same as the cause that forms the consciousness of thirst. Moreover, the neural process induced by thirst is the process of consciousness; they are one and the same process. However, this conscious sensation of thirst is subjective and first-person (meaning that my own conscious experience itself cannot be felt by others; others cannot feel the conscious experience I am having, and one can only experience one's own). This ontological feature cannot be substituted by the objective, third-person neural process.

This theory of his, in his own words, is: "neither materialism nor dualism" (Searle, 2004, p.126).

Searle only shows that consciousness can be causally reduced, but this does not explain, either ontologically or essentially, what consciousness truly is. Just as he himself admits, consciousness is ontologically irreducible to neural processes. Moreover, even if we accept this causal reduction, we still remain outside the essence of consciousness and have not touched upon consciousness itself. What we want to know is the essence of consciousness. He also fails to explain why the first-person ontological feature cannot be reduced to the third-person ontological feature. In this way, his so-called theory of naturalism is actually just another version of dualism. The ontological irreducibility he speaks of already demonstrates that there is an essential difference between neural processes and consciousness. Is this not the very root of dualism?

In fact, if a philosopher has not proposed their own framework for classifying Ontological Primitives (such as Descartes' dualism or materialist monism), then it can generally be determined that this person falls into one of three camps: a Cartesian-style dualist, a materialist within monism, or an idealist within monism.

(2) Now let us look at idealism

Idealists have not articulated anything more fundamental or profound than consciousness itself. They still use the concept of consciousness as the most basic one, at most classifying it into different categories—for example, self-consciousness, sensory consciousness, rational consciousness, sensation, perception, and so on—or they directly use consciousness as the most fundamental concept to explain other things, or to describe some of its functional actions. For example, Hegel's dialectical philosophy begins with "being," but it frames consciousness as the distinction between subject and object, failing to derive it as a unique concept (Hegel, 1807, p.67). His formal dialectic, rooted in logical structures, cannot explain the formless essence of consciousness. Idealism has simply not found anything more fundamental or more profound than consciousness; otherwise, a higher-dimensional philosophical framework would have emerged, and it could no longer be called idealism.

Indeed, matter and consciousness are too different. Our consciousness can produce thoughts; you cannot imagine a stone also thinking. Our consciousness can 'freely' make a decision to generate a certain movement; you cannot imagine the movement of a stone being caused by a 'free' decision made by the stone. Therefore, people naturally separate them as the two

Ontological Primitives of this world. This way of thinking is natural; indeed, matter and consciousness have an essential difference. But having an essential difference is one thing, and whether this method of division is reasonable is another. Is this division reasonable? Since Descartes, people have either walked down this path of dualism or, in order to avoid dualism, have taken the path of one of the monisms (idealism or materialism). Whichever path was taken, people have walked into the dense fog of dualism. It is time to clear this fog away.

How can dividing the world into matter and consciousness possibly be used to then explain consciousness? (Note: this refers to using consciousness as a concept for explanation, while all our explanations are carried out within consciousness). In fact, our understanding of the concepts of matter and consciousness is merely intuitive and vague. The phenomena these two concepts encompass and their relationships are far too complex for them to serve as clear points of reference for understanding the world. According to this method of division, neither matter nor consciousness can be truly explained. Idealism uses consciousness as an ontological concept to explain matter, asserting that existence depends on perception (Berkeley, 1710, p.23). In reality, such an explanation is merely a description of form; the essence of what matter is can never be explained this way. Can consciousness be used to explain consciousness itself? Of course not, because according to this division, consciousness is the most fundamental Ontological Primitive. This division thus leaves only matter to explain consciousness. In reality, using matter to explain consciousness, whether in science or philosophy, is essentially using form to explain consciousness (because the concept of matter itself is vague), even attempting to subsume consciousness within matter. Because materialists and proponents of scientism all use form to explain matter, and have achieved immense success in this regard, they consequently want to use form to explain consciousness as well. But has the explanation of matter truly been so successful? Science, through the explanation of form via physics or neuroscience, has only succeeded in describing behavior; what matter itself is remains a mystery, just like consciousness.

A strict division of the world into matter and consciousness is impossible. In fact, within consciousness, there exist forms that reflect the material world (for instance, we can see the shape and size of objects, and although the material world has no color, humans can use color to distinguish different things), and matter can, to a certain degree, alter human consciousness (for instance, some drugs can cause people to have hallucinations). After all, we study matter from within consciousness. If the world could be divided into absolutely distinct matter and consciousness, then how would it be possible for us to know matter from within consciousness? Therefore, no method can exist that divides the world into two absolutely distinct aspects. Thus, it is necessary to find a higher dimension to understand this world.

Dualism can be divided into strict dualism and relative dualism. Strict dualism holds that the two Ontological Primitives are completely different, mutually independent, and do not influence each other; it is either one or the other. This is a strict dichotomy. Relative dualism holds that the two Ontological Primitives are connected, have mutual interaction, and influence each other.

Descartes' mind-matter dualism is a form of strict dualism because he held that mind and matter are two completely different substances that cannot be converted into one another, nor can they influence each other. Leibniz's monadology, on the other hand, is a form of relative dualism (property dualism) because he held that the monad is a fundamental entity, but that it possesses

two attributes: perception and force. These two attributes are able to interact, and between the monads there exists a relationship of pre-established harmony.

In some forms of relative dualism, the two Ontological Primitives are not absolutely separate. For example, in the case of Aristotle's form and matter, these two 'Primitives' are relative: form can be seen as matter, and matter can also be seen as form. Form and matter are the intrinsic principles that constitute physical objects; they are not independent entities but exist in a mutually dependent relationship. In short, they are relative and can be mutually transformed (Aristotle, 1924). However, Aristotle's relative dualism is different from that of Leibniz. Aristotle held that form and matter are inseparable, because matter without form and form without matter do not exist. Leibniz held that monads are indivisible, windowless, and massless entities, and they have two attributes: perception and force. There is no physical interaction between monads; instead, they are coordinated through the pre-established harmony arranged by God. Between monad and monad, as well as between a monad's perception and its force, there are connections, but they are not inseparable (Leibniz, 1714).

Based on the preceding analysis, we know that absolute dualism is problematic because it divides the world into two absolutely different Ontological Primitives. However, these two Primitives actually need to be interconnected and interact with each other. The question then is, to which of these two Primitives does this interconnection and interaction belong? This is a very difficult question to answer. Therefore, the idea of absolute dualism is a flawed philosophical direction, and its existence has led to many inexplicable problems in philosophy. Aristotle's relative dualism is similarly problematic.

Aristotle's relative dualism, which regards form and matter as mutually dependent principles of substance, is also flawed. First, attributes such as "Socrates is white" are not substances, yet they exist as ontological realities and cannot be explained by the combination of form and matter. Second, Aristotle's hierarchical theory, which ranges from pure matter to pure form, leads to ambiguity. If the form of a house (its structure) originates from its matter (bricks and tiles), and the form of a city originates from its houses, it implies that the complexity of the matter increases the strength of the form. Conversely, stripping away matter (such as through abstraction to pure form) implies that a reduction in matter enhances the form (Aristotle, 1930). This conceptual lack of clarity weakens the coherence of the form-matter framework.

The two points above are sufficient to demonstrate that Aristotle's relative dualism is problematic.

In summary, all the aforementioned types of dualism are problematic, and as forms of monism, both materialism and idealism have encountered difficulties in explaining the problem of consciousness. As a topic that cannot be circumvented in philosophy, the problem of consciousness must be solved. Therefore, a change in thinking is required. The world needs to be differentiated, but not through the idea of dualism. Instead, it should be through a two-dimensional theory. What is this two-dimensional theory? That is the question to be studied in the next section.

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