David Chalmers: The "Hard Problem" and the Ghost of Qualia

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Abstract

This article opens a series dedicated to the thinkers who changed the map of consciousness. We begin with David Chalmers - the philosopher who in 1995 asked a question that turned the entire philosophy of consciousness upside down: "What if, knowing everything about the brain, we still do not understand why all this is accompanied by experience?" This question became known as the "hard problem of consciousness." In the article, I analyze what exactly Chalmers meant, why his argument about "philosophical zombies" still keeps scientists awake at night, and how this problem becomes the starting point for the entire series. I pay special attention to how the hard problem is redefined in my model: it is not a problem of missing data, but a problem of an exhausted conceptual framework. This redefinition is a key move that connects Chalmers' argument with Kuhn's argument (Article 14) and makes the transition to pedagogy possible.

Keywords: hard problem of consciousness, qualia, philosophical zombie, explanatory gap, neural correlates of consciousness, panpsychism, double-aspect theory, paradigmatic problem, epistemological recursion, communicative-cognitive framework of personality.

Editor's Note of the Series

We begin our journey with a question that turned the entire philosophy of consciousness upside down. Before 1995, neuroscience lived in a state of euphoria: it seemed that just a little more effort and we would fully explain consciousness. David Chalmers stopped this march with a single question: "What if, knowing everything about the brain, we still do not understand why all this is accompanied by experience?" This question became known as the "hard problem of consciousness." In this article, we will explore what exactly Chalmers meant, why his argument about "philosophical zombies" still keeps scientists awake at night, and how this problem becomes the starting point for our entire series. After reading it, you will understand why it is impossible to move forward without recognizing the "hard problem" - and why the answer to it, as I will show, lies not in neuroscience, but in pedagogy [6].

The Philosopher Who Made Neuroscience Stop and Think

David Chalmers is an Australian philosopher of consciousness, a professor at New York University and the Australian National University. In 1995, he published an article that divided the history of the study of consciousness into "before" and "after." This article was titled "Facing up to the Problem of Consciousness" and was published in the Journal of Consciousness Studies [1]. Before Chalmers, neuroscience lived in a state of euphoria. It seemed that just a little more effort and we would fully explain consciousness. Scientists scanned brains, found activation zones, and built maps of neural connections. Every new discovery seemed like a step toward solving the mystery. Chalmers stopped this march. He asked a question that sounded like a verdict on the entire reductionist project: "Even if we learn everything about how the brain works, will something remain unexplained?" And he answered: "Yes. The most important thing will remain - why all this is accompanied by experience." This question became known as the "hard problem of consciousness." And since then, no serious theory of consciousness can do without answering it.

Chalmers' 1995 article was not the first work to point out the difficulty of explaining subjective experience. Long before him, Nagel (1974) wrote about this in his article "What Is It Like to Be a Bat?" [10], and Levine (1983) introduced the concept of the "explanatory gap" [9]. But it was Chalmers who formulated the problem with the clarity and sharpness that made it central to the entire philosophy of consciousness. His merit lies not in "discovering" the

problem, but in articulating it: he divided questions about consciousness into those that can be solved by standard methods, and the one that is fundamentally unsolvable by them.

"Easy" and "Hard" Problems: What is the Difference?

To understand what Chalmers meant, one must understand his division of problems into "easy" and "hard." The "easy" problems of consciousness are everything that can be explained through brain functions. For example: how does the brain process visual information? How do we focus attention? How do we control behavior? How do we distinguish wakefulness from sleep? How does memory work? Chalmers calls them "easy" not because they are easy to solve (in fact, they are incredibly complex tasks), but because they are solvable by the standard methods of cognitive neuroscience. We can explain them through neural mechanisms, through computational processes, through evolutionary adaptation.

Imagine you are studying a car. The "easy" questions are how the engine works, how torque is transmitted to the wheels, how the braking system works. These questions can be answered by studying the mechanisms. The "hard problem" is the question of subjective experience. Why does experience exist at all? Why is the processing of visual information accompanied by the sensation of the color red? Why is the activation of pain receptors accompanied by the feeling of pain? Why are neural processes accompanied by subjective experience at all? Let us return to the car analogy. The "hard problem" is the question: why, when you drive a car, do you feel the pleasure of speed, see the beauty of the landscape, and feel the wind? The mechanisms of the car do not explain why the ride is accompanied by the driver's subjective experience. Chalmers argues: even if we fully explain all the "easy" problems - how the brain processes information, how attention works, how memory functions - we still will not answer the main question: why is all this accompanied by experience?

The division into "easy" and "hard" problems is not just a "classification." It is a methodological move that shows that neuroscience, by solving the "easy" problems, does not get closer to solving the "hard" one. We can perfectly explain how the visual cortex works, how signals from cones are processed, how a visual image is formed - and still not explain why this image is experienced. This is the difference between "explaining a function" and "explaining an experience." The first is achievable; the second is the problem.

Qualia: Ghosts in the Machine

To denote subjective experience, Chalmers (and many other philosophers of consciousness) uses the term "qualia" (from the Latin quale - "of what kind"). Qualia is what it is like to experience something. The qualia of red is what it is like to see red. The qualia of pain is what it is like to feel pain. The qualia of the taste of coffee is what it is like to taste coffee. Qualia is what cannot be conveyed to someone who has not experienced it.

Imagine you are trying to explain the color red to someone born blind. You can describe the wavelength (about 700 nanometers), you can explain how the cones in the retina are activated, you can explain which brain areas are involved. But you will not be able to convey the qualia of red to him - what it is like to see red. He may understand everything about the mechanisms, but he will not understand what it is like to experience it. Chalmers shows: qualia is what escapes neuroscience. We can map all the neural processes that occur when a person sees the color red, but this will not explain why this activity is accompanied by the experience of red.

Qualia is one of the most controversial terms in the philosophy of consciousness. Some philosophers (for example, Dennett) believe that qualia does not exist - that it is an illusion generated by an incorrect formulation of the question. Others (for example, Chalmers) believe that qualia is the most undeniable reality we know [8]. In my model, I accept the second position: qualia are real, and it is precisely their reality that creates the hard problem. If qualia did not exist, there would be no problem.

Why is this a Problem Specifically for Neuroscience?

Chalmers is not just philosophizing. He points to a specific problem faced by neuroscience. Modern neuroscience operates within the paradigm of the Neural Correlates of Consciousness (NCC). Scientists seek a correspondence between neural activity and subjective experience. For example: "When the subject reports seeing the color red, area V4 in the visual cortex is activated." This is an important step. But Chalmers shows: correlation is not explanation.

Imagine you notice that every time a rooster crows, the sun rises. You can record the correlation: rooster crows -> sun rises. But this does not explain why the sun rises. The rooster does not cause the sunrise - they are simply connected. In exactly the same way, by discovering that the activation of area V4 correlates with the experience of the color red, we have not explained why this activity is accompanied by experience. We have simply recorded a correspondence. Chalmers argues: neuroscience is stuck in a trap of correlations. It can endlessly accumulate data on where and when neural networks are activated, but this does not bring us closer to the answer to the question: how and why does this activity generate subjective experience?

The "trap of correlations" is not just a "methodological error." It is a structural characteristic of modern neuroscience. It arises because neuroscience works with "third-person" data (scans, recordings, measurements), while the hard problem is a "first-person" problem (experience). Between these two perspectives lies a gap that is not eliminated by the accumulation of data. It is precisely this gap that Varela (Article 6) tried to overcome through neurophenomenology.

"Explanatory Gap": Why Qualia Cannot Be Reduced to Neurons

Chalmers introduces the concept of the "explanatory gap." This term was first used by the philosopher Joseph Levine in 1983 [9], but Chalmers made it central to his argumentation [1]. The explanatory gap is the logical impossibility of deriving facts about consciousness from facts about physical processes.

Imagine you know everything about the molecular structure of water (H2O). You know how water molecules interact with each other, how they form ice or steam. From these facts, you can logically derive the properties of water: it is liquid at room temperature, it is transparent, it dissolves salt. But with consciousness, it is different. Even if you know everything about the neural processes in the brain, you cannot logically derive from these facts that they are accompanied by subjective experience. Between neurons and qualia there is no logical connection - there is only empirical correlation.

The "explanatory gap" is not a "temporary difficulty" that can be overcome with a "better theory." It is a logical gap: from a description of physical processes, one cannot logically derive a description of experience. This does not mean that experience is "supernatural"; it means that between description and experience lies a conceptual abyss. It is precisely this abyss that Chalmers calls the "hard problem."

Philosophical Zombies: The Thought Experiment That Changes Everything

Imagine a creature that is physically identical to you. It has the exact same brain, the exact same neural processes, the exact same behavior. It reacts to pain just like you, it talks about the color red just like you, it solves problems just like you. But there is one difference: this creature has no subjective experience. It behaves as if it feels pain, but in reality, it feels nothing. It talks about the color red, but does not see red. This is a philosophical zombie.

Chalmers argues: the philosophical zombie is logically possible. There is no logical contradiction in the statement: "There exists a creature physically identical to me, but without consciousness" [7]. This does not mean that philosophical zombies exist in reality. Chalmers does not claim that zombies walk among us. He argues that their existence is logically possible - and this means that consciousness is not reducible to physical processes.

Here it is appropriate to recall "The Matrix" by the Wachowskis. The inhabitants of the Matrix behave like conscious beings: they love, suffer, make decisions. But in reality, they are in a virtual reality, and their "experience" is just a simulation. Philosophical zombies are the inhabitants of the Matrix who behave like us, but have no subjective experience at all. Chalmers' argument is that we cannot logically exclude the possibility of the existence of such creatures. And if we cannot exclude it, it means that consciousness is something more than physical processes. It is not logically derived from them.

Why is this important? Because if the philosophical zombie is logically possible, then consciousness is not a logical consequence of physical processes. And therefore, physical processes do not explain consciousness - they merely correlate with it. This is the essence of the "hard problem": even knowing everything about the physics of the brain, we cannot explain why this physics is accompanied by consciousness.

The argument about philosophical zombies is one of the most discussed in the philosophy of consciousness. Its critics (for example, Dennett) argue that it is based on an intuition that may be erroneous. Its defenders (for example,

Chalmers) argue that the intuition here is reliable: we can imagine a zombie because consciousness is indeed not reducible to physics. In my model, I do not resolve this dispute; I accept Chalmers' conclusion: the gap exists, and it needs to be filled with something. What exactly - is the question that the entire series answers.

Chalmers Against Reductionism: Why "The Brain as a Computer" Doesn't Work

Chalmers criticizes the dominant approach in neuroscience - the neurocomputational metaphor. According to this approach, the brain is a computer, and consciousness is the software running on this "hardware." Chalmers shows: this metaphor does not solve the "hard problem." Imagine you have created an artificial intelligence that is physically identical to the human brain. This AI processes information, makes decisions, solves problems. But is it conscious? Does it have subjective experience? The neurocomputational metaphor does not answer this question. It can explain how the brain processes information, but it cannot explain why this processing is accompanied by experience. Chalmers argues: until we solve the "hard problem," we cannot consider that we have understood consciousness. We can endlessly study the mechanisms of the brain, but this does not bring us closer to solving the mystery of qualia.

The neurocomputational metaphor is not a "theory," but a paradigm in the Kuhnian sense (Article 14) [5]. It determines what questions can be asked, what methods can be used, what results are considered an "explanation." As long as this paradigm dominates, the hard problem remains unsolvable - not because we lack data, but because we do not know how to ask questions that go beyond its limits. This is exactly why I say that the hard problem is a paradigmatic problem.

What Does Chalmers Propose? Double-Aspect Theory and the Fundamentality of Consciousness

Chalmers does not leave us in a dead end. He proposes several possible solutions to the "hard problem" [7]. The first solution: panpsychism. Chalmers allows that consciousness may be a fundamental property of matter, similar to mass or charge. According to this idea, even elementary particles possess a primitive form of consciousness. And human consciousness is a complex integration of these elementary forms. This sounds strange, but think about it: we accept as a given that matter possesses mass and charge. Why not accept that matter also possesses consciousness? This does not solve all problems, but it allows us to bypass the "explanatory gap."

The second solution: double-aspect theory. Chalmers proposes an idea dating back to the philosophy of Spinoza: consciousness and matter are two aspects of the same reality. Neural processes and subjective experience are not two different things, but two ways of describing the same reality. Imagine a coin. On one side - heads, on the other - tails. These are not two different things, but two aspects of one coin. In exactly the same way, neural processes and consciousness may be two aspects of one reality. The third solution: to admit the problem is unsolved. Chalmers honestly admits: perhaps the "hard problem" cannot be solved within the framework of modern conceptual tools. Perhaps we need fundamentally new ideas.

Chalmers' three solutions are not "final answers," but directions for search. Panpsychism and double-aspect theory provoke much debate; admitting the problem is unsolved is an honest position, but it does not satisfy those who want a "solution." In my model, I propose a fourth direction - not metaphysical, but epistemological: not "what is consciousness," but "what must the knower be like in order to understand consciousness." This direction is developed in Article 1 (epistemological recursion) [2] and in Article 5 of Issue 1 (CCFP) [3].

Connection to My Hypothesis: Why CCFP is the Answer to Chalmers

My hypothesis is a direct response to the challenge thrown down by Chalmers. Chalmers showed: neuroscience is stuck in a trap of correlations. It cannot move from fixing neural activations to understanding the mechanisms of meaning generation. I argue: the reason for this dead end lies in the epistemological mismatch between the complexity of the object (the brain) and the cognitive apparatus of the researcher. To overcome this dead end, it is necessary to develop mental mechanisms capable of holding the multidimensionality of neurobiological processes [2].

Chalmers showed: qualia escapes reductionist explanation. We cannot derive facts about consciousness from facts about neurons. I argue: this does not mean that qualia is fundamentally unknowable. It means that other cognitive tools are needed to know it. The development of MM-1 (cause-and-effect analysis), MM-5 (Socratic dialogue), and MM-6 (critical thinking) is precisely the creation of a toolkit capable of approaching an understanding of qualia [3]. Chalmers proposed panpsychism and double-aspect theory as possible solutions. I propose a third solution:

epistemological recursion [2]. To know a system of maximum complexity, it is necessary to develop a knowing subject with a corresponding cognitive architecture. And this is the task of pedagogy [3].

The connection between Chalmers and CCFP can be formulated as follows. Chalmers describes the problem: the gap between neurons and qualia. CCFP describes the solution: the development of a cognitive apparatus capable of holding both perspectives. Pedagogy describes the process: the formation of this apparatus through education. Three levels - philosophical, psychological, pedagogical - form a single chain. Without Chalmers, CCFP would not have a "problem" to which it responds; with him, it becomes an answer to a specific challenge.

Redefinition: The Hard Problem as Paradigmatic

Here I want to take a step that is not present in Chalmers, but which, in my view, is a logical consequence of his argument. I call this step the redefinition of the hard problem as paradigmatic. Chalmers showed that the hard problem is an "explanatory gap." But what does this mean methodologically? It means that the problem cannot be solved within the existing paradigm. The reductionist paradigm, which explains the complex through the simple, is fundamentally incapable of explaining why neural processes are accompanied by experience. Not because it "lacks data," but because its conceptual framework does not include what needs to be explained.

This is exactly a paradigmatic problem in the Kuhnian sense (Article 14) [5]. Kuhn showed that science develops not through the linear accumulation of facts, but through paradigm shifts. A paradigm is exhausted when anomalies accumulate that it cannot explain. The hard problem is the main anomaly of modern neuroscience: it does not fit into the reductionist paradigm, and no accumulation of data will "solve" it. What does this change? It changes the solution strategy. If the hard problem is an "explanatory gap," then the solution consists in "filling the gap" - that is, finding the missing link. If the hard problem is a paradigmatic problem, then the solution consists in changing the paradigm - that is, going beyond the reductionist framework.

And it is precisely here that pedagogy enters the game. A paradigm shift is not just a "new idea." It is a cognitive act of re-conceptualization, which requires certain operational abilities: the ability to hold a contradiction (MM-5), deconstruct axioms (MM-6), see multi-level connections (MM-1), and calculate the consequences of theoretical moves (MM-11). Without these abilities, the researcher is doomed to "normal science" - the endless solving of puzzles within a framework that no longer works.

Redefining the hard problem as paradigmatic is the key move of the entire series. It connects Chalmers' argument (about the explanatory gap) with Kuhn's argument (about paradigm shifts) and makes the transition to pedagogy possible. Without this move, the series would be just "portraits of thinkers"; with it, it becomes an argumentative program.

Key Quote: The Phrase That Changes Everything

Here is a quote from Chalmers that should become an anchor for the reader: "Even when we know everything about the reactions in the brain, the question remains: why is all this accompanied by experience?" [1]. This phrase is the essence of the "hard problem." It shows that neuroscience, despite all its successes, remains blind to the most important thing - to subjective experience. The quote is important because it formulates the epistemological diagnosis of modern neuroscience. Neuroscience can explain the correlations between neural activity and experience, but it cannot explain the experience itself. This is not a "lack of method," but a structural characteristic of the reductionist paradigm.

Bridge to the Next Article: Colin McGinn and "Cognitive Closure"

Chalmers showed that the "hard problem" exists. But he left open the question: can we solve it? It is precisely this question that becomes central for the next thinker - Colin McGinn [4]. McGinn argues: no, we cannot. The human brain evolved to solve survival tasks, not to understand its own nature. We are cognitively closed to solving the hard problem - just as a dog is closed to the Pythagorean theorem. This sounds like a verdict. But in Article 2, I will show that McGinn is right in stating biological limits, but wrong in concluding that they are insurmountable. Man is the only creature capable of managed cultural and pedagogical evolution. By developing mental mechanisms, we go beyond biological "closure" - not by canceling limits, but by expanding them. But more on that in the next article.

The bridge to McGinn is important because it poses the next question after Chalmers. Chalmers showed that the problem exists; McGinn asks if we can solve it. McGinn's answer - "no" - creates a challenge that the entire series answers, starting from Article 2 (Vygotsky) and ending with Article 14 (Kuhn).

Practical Conclusion: How Chalmers' Idea is Used in CCFP Pedagogy

Chalmers' idea of the "hard problem of consciousness" has direct practical application in my pedagogical model.

Development of metacognitive reflection (MM-5, MM-6 - core). Chalmers showed that qualia is what cannot be conveyed through description. The only way to approach an understanding of qualia is to develop the ability for introspection and meta-awareness. Within the CCFP, this means the purposeful development of MM-5 (Socratic dialogue) and MM-6 (critical thinking) [3]. The student learns not just to fix facts, but to reflect on their own experience, to ask questions: "What is it like to experience? What do I feel when I see the color red?"

Overcoming reductionism through complex thinking (MM-1, MM-11 - core). Chalmers showed that the reductionist approach does not work. Within the CCFP, this means the development of MM-1 (cause-and-effect analysis) and MM-11 (strategic forecasting) [3]. The student learns not to reduce the complex to the simple, but to hold the multidimensionality of the problem. They understand: consciousness is not just "brain work," it is a complex system requiring special cognitive tools for understanding.

Formation of scientific honesty (MM-5, MM-6 - core). Chalmers showed that science must recognize its limits. Within the CCFP, this means cultivating scientific honesty - the ability to admit that we do not know something [3]. The student learns not to hide behind the illusion of omniscience, but to honestly admit: "I do not know how neural processes generate consciousness. But I can develop the cognitive tools that will bring me closer to the answer."

Preparation for a scientific revolution (MM-6, MM-11 - core). Chalmers showed that the "hard problem" requires a new paradigm. Within the CCFP, this means preparing students for the fact that they will not just accumulate knowledge, but change paradigms [2], [3]. They will develop mental mechanisms that will allow them to see the problem from a new angle and find a solution that seems impossible today.

In all four points, core mechanisms (MM-1, MM-5, MM-6, MM-11) are used. This is not a coincidence: the hard problem is a paradigmatic problem, and its solution requires precisely those mechanisms that constitute the act of re-conceptualization. Support mechanisms (MM-2, MM-4, MM-7, MM-8, MM-9) are not mentioned here because they do not constitute the act of solution - they only make it practically feasible. This distinction (core vs. support) was introduced in Article 5 of Issue 1 and is used throughout the series.

Conclusion

David Chalmers showed that neuroscience is stuck in a trap of correlations. He formulated the "hard problem of consciousness" and showed that qualia escapes reductionist explanation. But I proposed a redefinition: the hard problem is not just an "explanatory gap," but a paradigmatic problem. This means that its solution requires not "more data," but a paradigm shift. And a paradigm shift requires a cognitive act of re-conceptualization, which, in turn, requires the development of mental mechanisms [3]. My hypothesis is a response to Chalmers' challenge: to solve the "hard problem," it is necessary to develop mental mechanisms capable of holding the multidimensionality of neurobiological processes. And this is the task of CCFP pedagogy [2].

The conclusion connects Article 1 with the rest of the series. Chalmers posed the problem; McGinn (Article 2) [4] asked about its solvability; Morin, Foerster, Hofstadter (Articles 3-5) showed why old tools do not work; Varela, Friston, Tononi (Articles 6-8) proposed new approaches; Vygotsky and Chernigovskaya (Articles 9-10) showed how to develop the subject; Sosa, Zagzebski, Perkins, Tishman, Clark, Sterelny (Articles 11-13) provided philosophical justification; Kuhn (Article 14) [5] showed how paradigm shifts occur. Together they form a complete map of the path from the hard problem to a new pedagogy.

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