The Hard Problem of Consciousness: Why Do We Feel?

Authored by

mohammad looti

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The hard problem of consciousness is the problem of explaining how and why we have qualia or phenomenal experiences--how sensations acquire characteristics, such as colors and tastes. The philosopher David Chalmers, who introduced the term "hard problem" of consciousness, contrasts this with the "easy problems" of explaining the ability to discriminate, integrate information, report mental states, focus attention, etc. Easy problems are easy because all that is required for their solution is to specify a mechanism that can perform the function. That is, their proposed solutions, regardless of how complex or poorly understood they may be, can be entirely consistent with the modern materialistic conception of natural phenomena. Chalmers claims that the problem of experience is distinct from this set, and he argues that the problem of experience will "persist even when the performance of all the relevant functions is explained".

The existence of a "hard problem" is controversial and has been disputed by philosophers such as Daniel Dennett and cognitive neuroscientists such as Stanislas Dehaene. Clinical neurologist and skeptic Steven Novella has dismissed it as "the hard non-problem".

Formulation of the Problem

Chalmers' Formulation

In Facing Up to the Problem of Consciousness (1995), Chalmers wrote:

It is undeniable that some organisms are subjects of experience. But the question of how it is that these systems are subjects of experience is perplexing. Why is it that when our cognitive systems engage in visual and auditory information-processing, we have visual or auditory experience: the quality of deep blue, the sensation of middle CHow can we explain why there is something it is like to entertain a mental image, or to experience an emotion? It is widely agreed that experience arises from a physical basis, but we have no good explanation of why and how it so arises. Why should physical processing give rise to a rich inner life at all? It seems objectively unreasonable that it should, and yet it does.

In the same paper, he also wrote:

The really hard problem of consciousness is the problem of experience. When we think and perceive there is a whir of information processing, but there is also a subjective aspect.

The philosopher Raamy Majeed noted in 2016 that the hard problem is, in fact, associated with two "explanatory targets":

Physical processing gives rise to experiences with a phenomenal character.
Our phenomenal qualities are thus-and-so.

The first fact concerns the relationship between the physical and the phenomenal, whereas the

second concerns the very nature of the phenomenal itself. Most responses to the hard problem are aimed at explaining either one of these facts or both.

Easy Problems

Chalmers contrasts the hard problem with a number of (relatively) easy problems that consciousness presents. He emphasizes that what the easy problems have in common is that they all represent some ability, or the performance of some function or behavior. Examples of easy problems include:

the ability to discriminate, categorize, and react to environmental stimuli;
the integration of information by a cognitive system;
the reportability of mental states;
the ability of a system to access its own internal states;
the focus of attention;
the deliberate control of behavior;
the difference between wakefulness and sleep.

Other Formulations

Other formulations of the "hard problem" include:

How is it that some organisms are subjects of experience?
Why does awareness of sensory information exist at all?
Why do qualia exist?
Why is there a subjective component to experience?
Why aren't we philosophical zombies?

Historical Predecessors

The hard problem has scholarly antecedents considerably earlier than Chalmers, as Chalmers himself has pointed out.

The physicist and mathematician Isaac Newton wrote in a 1672 letter to Henry Oldenburg:

to determine by what modes or actions light produceth in our minds the phantasm of colour is not so easie.

In An Essay Concerning Human Understanding (1690), the philosopher and physician John Locke argued:

Divide matter into as minute parts as you will (which we are apt to imagine a sort of spiritualizing or making a thinking thing of it) vary the figure and motion of it as much as you please--a globe, cube,

cone, prism, cylinder, etc., whose diameters are but 1,000,000th part of a gry, will operate not otherwise upon other bodies of proportionable bulk than those of an inch or foot diameter--and you may as rationally expect to produce sense, thought, and knowledge, by putting together, in a certain figure and motion, gross particles of matter, as by those that are the very minutest that do anywhere exist. They knock, impel, and resist one another, just as the greater do; and that is all they can do... t is impossible to conceive that matter, either with or without motion, could have originally in and from itself sense, perception, and knowledge; as is evident from hence that then sense, perception, and knowledge must be a property eternally inseparable from matter and every particle of it.

The polymath and philosopher Gottfried Leibniz wrote in 1714, as an example also known as Leibniz's gap:

Moreover, it must be confessed that perception and that which depends upon it are inexplicable on mechanical grounds, that is to say, by means of figures and motions. And supposing there were a machine, so constructed as to think, feel, and have perception, it might be conceived as increased in size, while keeping the same proportions, so that one might go into it as into a mill. That being so, we should, on examining its interior, find only parts which work one upon another, and never anything by which to explain a perception.

The philosopher and political economist J.S. Mill wrote in A System of Logic (1843), Book V, Chapter V, section 3:

Now I am far from pretending that it may not be capable of proof, or that it is not an important addition to our knowledge if proved, that certain motions in the particles of bodies are the conditions of the production of heat or light; that certain assignable physical modifications of the nerves may be the conditions not only of our sensations or emotions, but even of our thoughts; that certain mechanical and chemical conditions may, in the order of nature, be sufficient to determine to action the physiological laws of life. All I insist upon, in common with every thinker who entertains any clear idea of the logic of science, is, that it shall not be supposed that by proving these things one step would be made towards a real explanation of heat, light, or sensation; or that the generic peculiarity of those phenomena can be in the least degree evaded by any such discoveries, however well established. Let it be shown, for instance, that the most complex series of physical causes and effects succeed one another in the eye and in the brain to produce a sensation of colour; rays falling on the eye, refracted, converging, crossing one another, making an inverted image on the retina, and after this a motion--let it be a vibration, or a rush of nervous fluid, or whatever else you are pleased to suppose, along the optic nerve--a propagation of this motion to the brain itself, and as many more different motions as you choose; still, at the end of these motions, there is something which is not motion, there is a feeling or sensation of colour. Whatever number of motions we may be able to interpolate, and whether they be real or imaginary, we shall

still find, at the end of the series, a motion antecedent and a colour consequent. The mode in which any one of the motions produces the next, may possibly be susceptible of explanation by some general law of motion: but the mode in which the last motion produces the sensation of colour, cannot be explained by any law of motion; it is the law of colour: which is, and must always remain, a peculiar thing. Where our consciousness recognises between two phenomena an inherent distinction; where we are sensible of a difference which is not merely of degree, and feel that no adding one of the phenomena to itself would produce the other; any theory which attempts to bring either under the laws of the other must be false; though a theory which merely treats the one as a cause or condition of the other, may possibly be true.

The biologist T.H. Huxley wrote in 1868:

But what consciousness is, we know not; and how it is that anything so remarkable as a state of consciousness comes about as the result of irritating nervous tissue, is just as unaccountable as the appearance of the Djin when Aladdin rubbed his lamp in the story, or as any other ultimate fact of nature.

The philosopher Thomas Nagel argued in 1974:

If physicalism is to be defended, the phenomenological features must themselves be given a physical account. But when we examine their subjective character it seems that such a result is impossible. The reason is that every subjective phenomenon is essentially connected with a single point of view, and it seems inevitable that an objective, physical theory will abandon that point of view.

Responses

Scientific Attempts

There have been scientific attempts to explain subjective aspects of consciousness, which is related to the binding problem in neuroscience. Many eminent theorists, including molecular biologist and neuroscientist Francis Crick and mathematical physicist and philosopher Roger Penrose, have worked in this field. Nevertheless, even as sophisticated accounts are given, it is unclear if such theories address the hard problem as Chalmers formulated it. Eliminative materialist philosopher Patricia Smith Churchland famously remarked about Penrose's theories that "Pixie dust in the synapses is about as explanatorily powerful as quantum coherence in the microtubules."

Consciousness is Fundamental or Elusive

Some philosophers, including David Chalmers in the late 20th century and Alfred North Whitehead earlier in the 20th century, argued that conscious experience is a fundamental constituent of the

universe, a form of panpsychism sometimes referred to as panexperientialism. Chalmers argued that a "rich inner life" is not logically reducible to the functional properties of physical processes. He states that consciousness must be described using nonphysical means. This description involves a fundamental ingredient capable of clarifying phenomena that have not been explained using physical means. Use of this fundamental property, Chalmers argues, is necessary to explain certain functions of the world, much like other fundamental features, such as mass and time, and to explain significant principles in nature.

The philosopher Thomas Nagel posited in 1974 that experiences are essentially subjective (accessible only to the individual undergoing them), while physical states are essentially objective (accessible to multiple individuals). So at this stage, he argued, we have no idea what it could even mean to claim that an essentially subjective state just is an essentially non-subjective state. In other words, we have no idea of what reductivism really amounts to.

New mysterianism, such as that of the philosopher Colin McGinn, proposes that the human mind, in its current form, will not be able to explain consciousness.

Deflationary Accounts

Some philosophers, such as Daniel Dennett and Peter Hacker oppose the idea that there is a hard problem. These theorists have argued that once we really come to understand what consciousness is, we will realize that the hard problem is unreal. For instance, Dennett asserts that the so-called hard problem will be solved in the process of answering the "easy" ones (which, as he has clarified, he does not consider "easy" at all). In contrast with Chalmers, he argues that consciousness is not a fundamental feature of the universe and instead will eventually be fully explained by natural phenomena. Instead of involving the nonphysical, he says, consciousness merely plays tricks on people so that it appears nonphysical--in other words, it simply seems like it requires nonphysical features to account for its powers. In this way, Dennett compares consciousness to stage magic and its capability to create extraordinary illusions out of ordinary things.

To show how people might be commonly fooled into overstating the powers of consciousness, Dennett describes a normal phenomenon called change blindness, a visual process that involves failure to detect scenery changes in a series of alternating images. He uses this concept to argue that the overestimation of the brain's visual processing implies that the conception of our consciousness is likely not as pervasive as we make it out to be. He claims that this error of making consciousness more mysterious than it is could be a misstep in any developments toward an effective explanatory theory. Critics such as Galen Strawson reply that, in the case of consciousness, even a mistaken experience retains the essential face of experience that needs to be explained, contra Dennett.

To address the question of the hard problem, or how and why physical processes give rise to experience, Dennett states that the phenomenon of having experience is nothing more than the performance of functions or the production of behavior, which can also be referred to as the easy problems of consciousness. He states that consciousness itself is driven simply by these functions, and to strip them away would wipe out any ability to identify thoughts, feelings, and consciousness altogether. So, unlike Chalmers and other dualists, Dennett says that the easy problems and the hard problem cannot be separated from each other. To him, the hard problem of experience is included among--not separate from--the easy problems, and therefore they can only be explained together as a cohesive unit.

Like Dennett, Hacker argues that the hard problem is fundamentally incoherent and that "consciousness studies", as it exists today, is "literally a total waste of time":

The whole endeavour of the consciousness studies community is absurd--they are in pursuit of a chimera. They misunderstand the nature of consciousness. The conception of consciousness which they have is incoherent. The questions they are asking don't make sense. They have to go back to the drawing board and start all over again.

Critics of Dennett's approach, such as Chalmers and Nagel, argue that Dennett's argument misses the point of the inquiry by merely re-defining consciousness as an external property and ignoring the subjective aspect completely. This has led detractors to refer to Dennett's book Consciousness Explained as Consciousness Ignored or Consciousness Explained Away. Dennett discussed this at the end of his book with a section entitled Consciousness Explained or Explained Away?

Though the most common arguments against deflationary accounts and eliminative materialism are the argument from qualia and the argument that conscious experiences are irreducible to physical states--or that current popular definitions of "physical" are incomplete--the objection follows that the one and same reality can appear in different ways, and that the numerical difference of these ways is consistent with a unitary mode of existence of the reality. Critics of the deflationary approach object that qualia are a case where a single reality cannot have multiple appearances. For example, the philosopher John Searle pointed out: "where consciousness is concerned, the existence of the appearance is the reality".

A notable deflationary account is the higher-order theories of consciousness. In 2005, the philosopher Peter Carruthers wrote about "recognitional concepts of experience", that is, "a capacity to recognize type of experience when it occurs in one's own mental life", and suggested that such a capacity does not depend upon qualia.

The philosophers Glenn Carruthers and Elizabeth Schier said in 2012 that the main arguments for the existence of a hard problem--philosophical zombies, Mary's room, and Nagel's bats--are only persuasive if one already assumes that "consciousness must be independent of the structure and

function of mental states, i.e. that there is a hard problem". Hence, the arguments beg the question. The authors suggest that "instead of letting our conclusions on the thought experiments guide our theories of consciousness, we should let our theories of consciousness guide our conclusions from the thought experiments".

In 2013, the philosopher Elizabeth Irvine pointed out that both science and folk psychology do not treat mental states as having phenomenal properties, and therefore "the hard problem of consciousness may not be a genuine problem for non-philosophers (despite its overwhelming obviousness to philosophers), and questions about consciousness may well 'shatter' into more specific questions about particular capacities".

The philosopher Massimo Pigliucci distances himself from eliminativism, but he said in 2013 that the hard problem is still misguided, resulting from a "category mistake":

Of course an explanation isn't the same as an experience, but that's because the two are completely independent categories, like colors and triangles. It is obvious that I cannot experience what it is like to be you, but I can potentially have a complete explanation of how and why it is possible to be you.

The Source of Illusion

A complete reductionistic or mechanistic theory of consciousness must include the description of a mechanism by which subjective aspect of consciousness is perceived and reported by people. Philosophers such as Chalmers or Nagel have rejected reductionist theories of consciousness because they believe that the reports of subjective experience constitute a vast and important body of empirical evidence which is ignored by modern reductionist theories of consciousness.

Dennett argued that solving the easy problem of consciousness, that is finding out how the brain works, will eventually lead to the solution of the hard problem of consciousness. In particular, the solution can be achieved by identifying the stimuli and neurological pathways whose operation generates evidence of subjective experience.

Cognitive neuroscientist Stanislas Dehaene, in his 2014 book Consciousness and the Brain, summarized the previous decades of experimental consciousness research involving reports of subjective experience, and argued that Chalmers' "easy problems" of consciousness are actually the hard problems and the "hard problems" are based only upon ill-defined intuitions that, according to Dehaene, are continually shifting as understanding evolves:

Once our intuitions are educated by cognitive neuroscience and computer simulations, Chalmers' hard problem will evaporate. The hypothetical concept of qualia, pure mental experience, detached from any information-processing role, will be viewed as a peculiar idea of the prescientific era, much like vitalism... the science of consciousness will keep eating away at the hard problem of

consciousness until it vanishes.