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Abstract

For a long time, philosophers and scientists have attempted without success to develop a mind-body theory, a consciousness theory (T_c) to explain the exact relation between the mind and the body, a solution which is based on an assumed connection between consciousness and the activity of the neurophysiological processes in the brain. An important concern of the present paper, then, is to address the question of why, despite the great research effort on the subject, no successful T_c has ever been developed. In response, McGinn (1989) proposes that the human being's cognitive system is not equipped to solve the problem. The present paper suggests another possible answer: If T_c had been discovered, a number of "negative-ramifications" would have emerged. These ramifications would have interfered with the development of a T_c. The paper discusses these ideas and arguments and finally suggests that it would be helpful to conceive of consciousness as an explanatory concept, which has yet to be explained.

Keywords: mind-body theory, consciousness, scientific methodology, philosophy of the mind, cognition

What will happen if science will develop a theory of consciousness? Negative ramifications.

Philosophers and researchers have made continuous attempts to develop a theory of mind-body, a theory of consciousness (T_c) based on an assumed connection between consciousness, our subjective experiences, sensations, emotions, thoughts etc. and the activity of the neurophysiological processes in the brain, but so far without success (for reviews, e.g., Gennaro, 2016; Koch, 2018; Rakover, 2018, 2021a; Seth & Bayne, 2022; Van Gulick, 2022). For example, Rakover (2018) draws attention to many citations of philosophers and researchers who insist that the mind-body problem has not yet been solved, and that the question of how the brain could give rise to consciousness has not been successfully theorized. Van Gulick (2022) concluded his review on consciousness by stating that it is unlikely that a unified theory of consciousness that explains all the questions regarding consciousness will be developed. It should be noted here that the intended T_c is not a correlation between two variables – conscious experiences and neurophysiological activity in the brain – but rather a specification of a particular mechanism that brings about consciousness. One reason for this methodological claim that a correlation between these two variables cannot function as an appropriate explanation for consciousness is that a correlation itself is no more than a phenomenon that needs a theoretical explanation – an empirical observation to be explained. Such an explanation, as mentioned above, has to be based on a mechanism that describes how one variable (brain activity) gives rise to or causally affects the other (consciousness) (e.g., Neal & Liebert, 1986; Rakover, 1990).

The modern mind-body problem (also known as the problem of consciousness) was famously addressed by French philosopher, René Descartes, in the 17th century (see Hatfield, 2018). Since the body-mind, consciousness, problem is yet to be solved, this raises the perplexing question, the "unsolved-problem": Why is it that despite 370 years of research the problem of how the mind and body are related and how they affect each other, a solution to the problem continues to elude philosophers and scientists? Why successful T_c has not been developed?

The unsolved-problem, to the best of my knowledge, raises the following new question, which is the main concern of the present paper: what will happen if science will succeed in developing the T_c? Will the T_c have positive or negative ramifications?

It can be argued that the scientific developments, which began from the time of Galileo until today, is extremely beneficial and positive: there have been huge improvements in the quality of human life in all areas, such as life expectancy, health, housing, transportation, etc. Of course, one may also raise a counter argument that science has brought great disasters, for example, horrifying means of war, climate damage, etc. Even so, it seems that most people would agree that the blessing of scientific developments outweighs its curse. Will we also reach a similar conclusion regarding T_c? To answer, I will first discuss four attempts to handle the unsolved-problem, where the last of these attempts will lead us directly to the issue of the Tc's ramifications.

I will start with McGinn's (1989) proposal and then suggest other three. McGinn begins by suggesting that "We have been trying for a long time to solve the mind-body problem. It has stubbornly resisted our best efforts. The mystery persists. I think the time has come to admit candidly that we cannot resolve the mystery." (p. 349). He then goes on to argue that the human

cognitive system is not equipped to solve the mind-body problem, just as it is impossible for us to perceive the whole range of the electromagnetic spectrum. It could be suggested that human cognitive capacity is innately limited and unable to grasp the complex relation between the neurophysiological activity of the brain and consciousness. McGinn (1989) writes: "It is just that, in the case of the mind-body problem, the bit of reality that systematically eludes our cognitive grasp is an aspect of our nature." (p. 366). He argued: "… that we cannot know which property of the brain accounts for consciousness, and so we find the mind-brain link unintelligible." (p. 359). Observations about the brain will not lead to any revelations about consciousness, and methods of introspection (i.e., observing one's own conscious experiences) will not bring us any closer to an understanding how brain activity brings about consciousness. Physical phenomena is explained by purely physical accounts without involving conscious states such as will, belief, intention, and emotion.

McGinn's approach, which has been called "mysterianism", has been subjected to criticism that I will not discuss here (see e.g., Flanagan, 1922; Rowlands, 2007). Beyond McGinn's proposal, I propose three approaches and will concentrate mainly on the last one, which handles our main question: what will happen if the T_c is discovered?

The First Alternative Approach: *limitations of Scientific Methodology*

A successful T_c has not been developed not because of the limits of human cognitive capacity, as McGinn (1989) suggests, but because of the limitations of scientific methodology which has been developed for research in physical and biological phenomena (the sciences). Perhaps this type of methodology is not appropriate for investigations into the phenomena of consciousness. It should be noted that this argument is not new. For example, at the end of the 19th century, German philosophers and researchers (such as Wilhelm Dilthey and Max Weber)

posited a distinction between (a) the explanation (*erklaren*) of the natural world, i.e., research in the natural sciences, and (b) a meaningful understanding (*verstehen*) of the human world, i.e., research in the humanities and social sciences (see discussions in Grimm, 2016, 2019; Rakover, 1990, 2018, 2021b). Although this distinction is no longer accepted, one may suggest that it is difficult to directly apply the research methodologies developed in the natural sciences to research in consciousness (see Grimm, 2016; Rakover, 1990, 2018). For example, while properties in the physical world lend themselves to public observations, conscious properties lend themselves only to private observations (introspection). On the one hand, only Mr. Smith himself can feel the sensation of pain from a blow to his hand and no one else. On the other hand, anyone can measure the weight of Mr. Smith's body with great accuracy.

The Second Alternative Response: Hidden Energy

A successful T_c has not been developed because there exists a certain hypothetical undiscovered "hidden energy", which constitutes consciousness and involves brain activity via certain interactive processes. The main justifications for this speculation are twofold: The first is the mere fact that a T_c has not been discovered to date and the second is the analogy to two hypothetical terms in astrophysics, which were created to account for certain incomprehensible cosmological observations. One hypothetical concept relates to unobservable "dark matter" which is meant to account for the phenomenon of missing mass – the discrepancy between theoretical gravitational computation and the total visible mass in space; the other hypothetical term is unobservable "dark energy" which is supposed to explain the discrepancy between the theoretical calculation of cosmic expansion and the observation that the expansion of the universe is accelerating. Both hypothetical concepts were designed to close the gap between theory and observation. Similarly, the "hidden energy" hypothetical concept is intended to close

the gap between brain activity and consciousness. (As can be seen, this idea is different from the well-known theoretical approach of "substance dualism", which proposes that the mind is something non-physical. See for example Gennaro, 2016; Kim, 2011; Levine, 2007; Van Gulick, 2022.) Another approach that supports a certain variation of the current alternative suggests that consciousness is related to the brain but not limited to it and that consciousness is more fundamental than matter (see Wahbeh, Radin, Cannard & Delorme, 2022). The Neutral Monism, which is also related to the current alternative, suggests seeing consciousness as part of the union of opposites. This approach is based on two components: the physical and the mental, when these two are irreducible to each other (see Horne, 2022).

The Third Alternative Response: T_c is Discovered

A successful T_c has not been developed because of the following possibility: if the T_c is discovered, several unreasonable and strange ramifications, which I shall call "negative-ramifications", will emerge. These negative-ramifications, in one way or another, may function as potential obstacles in the path to developing the T_c. For example, when researchers will develop this theory, the negative-ramifications will serve as criticisms, as critical obstacles in the way of developing this theory, as empirical observations that disconfirm T_c, and thus will prevent T_c acceptance by the scientific community. As sometimes happens, researchers may ignore these negative-ramifications (the criticisms), but in the end they will be effective in doubting and eliminating T_c. This possibility will be elaborated as follows: I will first deal with the methodological framework of developing the T_c and then discuss the negative-ramifications.

Developing the T_c: Let us assume that within the accepted methodology of psychology (which was largely imported from the sciences, e.g., Rakover, 1990) it is possible to develop a theory of human consciousness, which explains how consciousness emerges from brain activity. Such a consciousness theory, T_c, which is not a mere correlation, may be expressed by the following general schematic equation:

T_c: Consciousness (C) = f(brain's neurophysiological activity (BNA)).

Here f represents a certain hypothetical function that connects C to BNA. The basic conception is that T_c portrays the future discovery how consciousness arises from neurophysiological activity in the brain. The T_c is presented here in the most general and schematic way. Thus, it does not express any particular consciousness theory or mind-body theory discussed in the professional literature: neither higher-order, representational, information integration theories, nor identity theory, or functionalism etc. (e.g., Gennaro, 2016; Seth & Bayne, 2022; Van Gulick, 2022). These theories as well as others were criticized thoroughly and failed several important tests (e.g., Kim, 2011; Levine, 2007; Seth & Bayne, 2022; Smart, 2017; Van Gulick, 2022). That is to say, the main idea here is that researchers in the future, knowing all there is to know about the unsuccessful attempts to develop a mind-body theory, a consciousness theory, have nevertheless succeeded in developing T_c.

Despite the schematic presentation of C=f(BNA), this general equation should fulfil the methodological requirement of "unit-equivalency", which is based on the well-known method of dimensional analysis. Accordingly, the result of the combination of units of measurement on one side of any equation expressing a law or a theory must present the same result of the combination of units of measurement on the other side of the equation (see Rakover 2002, 2018). For example, consider Galileo's law of free fall: $D=1/2GT^2$. Since D is measured by the unit of the

meter, the expression GT^2 likewise has to be measured by the same unit: meter=(meter/time^2) x time^2. That is, the distance of fall is equal to the combination of two different concepts: gravitational acceleration and time of fall (i.e., the distance of fall is not identical to either of these two, but to their combination).

Given this requirement, one should ask: how the variables in C=f(BNA) can be measured? The BNA can be measured by the conventional units employed in the sciences, such as differences in voltage, the intensity of the electric current, or certain chemical reactions in the brain. For the sake of simplicity, I will refer to these units of measurement by the general term "conventional units" (CU).

As for the measurement of consciousness, the answer is complex. We still do not know how to directly measure a human being's conscious experiences. It is of course possible to assume that different behaviors express certain properties of consciousness. While verbal responses are considered as representing one's subjective consciousness, no one knows how to objectively measure conscious experiences. For example, Rakover (2020) argues that it makes no sense at all to say that Jacob loved Rachel 7.5 CU_{love} more than he loved Leah (CU_{love} signifies an unknown measurement of units of love). There is no measurement unit of love like the objective units of measurement of distance and weight.

However, since we assume that C = f(BNA), it can be proposed that consciousness has to be measured also by CU. The reasons for this are as follows. Since (a) there is currently no method for measuring consciousness in a way similar to measurements carried out in physics, chemistry and behavior (responses), (b) the methodological framework, within which the above equation, T_c, has been discovered, was developed in the sciences (e.g., physics and chemistry), and (c) the equation C = f(BNA) has to fulfill the requirement for "unit-equivalency", then one

may infer that consciousness is measured by using CU. Put differently, given C = f(BNA), consciousness has to be expressed in CU.

This conclusion means that, no matter what will be the specific form of T_c, the units of measurement for consciousness will be in CU! For example, if BNA is measured in milliamps (the measure of electrical current intensity), then consciousness also has to be expressed in milliamps. (Let us assume that science has finally discovered that consciousness is measured in CU but not in milliamps as the BNA. In this case, the above equation will be multiplied by a certain constant so that the measurement-units combination of consciousness will be in milliamps – a result that fulfills the unit-equivalency requirement.)

In view of the above, it may be concluded that consciousness will be measured as any other concept in the natural sciences, by observable, objective, i.e., conventional units of measurement (CU). This includes other conscious mental qualities such as meaning and understanding, since consciousness is considered a necessary condition for these two mental properties (e.g., Rakover, 2018, 2021b). Furthermore, it is reasonable to propose that a whole technology based on T_c could be developed and manufactured, such as a device called the "Consciousness-Meter". On the one hand, this device measures any kind of consciousness in CU, and on the other hand, it can measure in CU any physical or chemical property. This hypothetical development would lead to the situation called "Open-Mind", where the inner world (sensations, feelings, thoughts, intentions, etc.) of any person would be open and accessible to everyone.

The T_c and the Open-Mind produce several negative-ramifications, which I shall now briefly discuss. These ramifications, which can be divided into two broad categories: (1) a dreadful world (a, b, c); (2) theoretical problems (d, e, f), are in fact serious criticisms of T_c.

(a) *Loss of individuality*: Let us suppose an extreme condition that in the Open-Mind, the privacy, individuality, and subjectivity of each person are evaporating. Why? Because this condition would lead to the horrifying scenario in which individuals become fearful of their own thoughts and intentions, since these would no longer be their own secrets but publicly exposed. This might result in the avoidance of thinking and planning – a destructive condition for the individual himself and for cultural progress. That is, it seems that cultural development would be considerably impaired because of this situation. There will be no new ideas, plans and reforms. Thus, it could be argued that a hidden, private inner world is a necessary condition for the development of a prosperous culture, since if the inner world is avoided and disappeared, there would be a decline in cultural progress.

(b) *A world full of objective meanings*: Before the development of the T_c humans ascribed meaning to an indifferent world (e.g., see Rakover, 2021a). However, the T_c, Open-Mind and the Consciousness-Meter raise the possibility that everything in the world would have an objective meaning since any physical or chemical property will be measured by the Consciousness-Meter's CU. Does this indicate that the meaning of any phenomenon in the universe is objective and independent of human assessment? According to T_c and its technology, the answer is affirmative: A wonderful world full of meanings, which are part of all other natural and objective features of nature. This situation may reduce the differences among people and cultures, because all the different interpretations given to the world will disappear, and every feature in the world will have an objective meaning**.**

(c) *A malicious use*: It is not hard to imagine the following scenario resulting from the technology developed on the basis of T_c: A dictator orders to develop certain pills that will increase or decrease consciousness, meaning, and understanding. This dictator could force his

citizens to take one pill each day to increase his importance in their eyes, and a second pill to enhance their stupidity and diminish their understanding of his intentions (although these remain publicly exposed). Furthermore, with certain pills, it would be possible to develop a small number of geniuses specifically designed to fulfill the dictator's goals, while the majority of his subjects would be required to do all the hard work for disgracefully low wages.

(d) Loss of dimensionality: The T_c and the Open-Mind, would lead to the tendency to mix things that belong to different dimensions or categories. The same level of importance could be attributed to the meanings of things with completely different qualities since they would have the same CU. For example, if Smith's love for his wife Anna amounts to 20CU and his decision to buy a secondhand car equates also to 20CU, then his love for Anna equals his "love" for the used car. From our point of view today, there is no comparison between loving a woman and wanting to drive a used car. These are two different qualities.

(e) *T_c falsification*: The T_c and the Consciousness-Meter were applied in two cases. First, when Mrs. Smith from New York, a lover of Renaissance art, saw the Mona Lisa, her level of 'art-excitement' was measured by the Consciousness-Meter and it equaled +50CU. Second, in an art survey, it was found that an environmental sculpture installed in Paris, made of objects that had been discarded and retrieved from the municipal garbage dump, irradiated exactly +50CU. Given this, it was hypothesized on the basis of T_c and the Consciousness-Meter that Mrs. Smith's impression of the Mona Lisa would equal her art-excitement of the environmental sculpture, +50CU precisely. However, when Mrs. Smith was shown the sculpture in Paris, the Consciousness-Meter recorded -50CU. That is, she detested the sculpture. Thus, the prediction that Mrs. Smith will like the modern sculpture as much as she appreciates the Mona Lisa painting is not confirmed by observation, i.e., T_c is refuted.

(f) A conscious robot? Suppose that Roby the robot is constructed in such a way that it has experiences (measured in CU) similar to those of Mrs. Smith: Roby the robot's art-excitement of Leonardo's painting of the Mona Lisa is +50CU. The question that arises here is will Roby deteste the environmental sculpture like Mrs. Smith? The answer to the question can be either positive or negative. I tend to give a negative answer that is based on well-known arguments, such as Searle's (1980) Chinese room, Jackson's (1982) vision expert Mary, Levine's (1983) explanatory gap, and Chalmers' (1997) hard problem, arguments suggesting that a full explanation of consciousness is not given by the materialist approach. [In an article summarizing the debate about these and other arguments, Levine (2007) writes his final conclusion: "… the basic mind-body problem is still with us." (p.380)]. However, there are researchers who have an opposite approach and are playing with the idea that sophisticated robots, computers, may have consciousness (for reviews and discussions see e.g., Buttazzo, 2001; Chella et all, 2019; Koch, 2018; Reggia, 2013). Here, in my opinion, arises the big difference between a creature that has consciousness and a creature that only imitates the behavior of a conscious creature. If Roby was gifted with consciousness (same as Mrs. Smith), it would have responded like Mrs. Smith (it would have loathed the environmental sculpture) but because it is nothing more than a machine, it responds with the same level of art-excitement to the Mona Lisa picture and the environmental sculpture (both have exactly the same measurement: +50CU). Rakover (2021b) argued that consciousness is a necessary condition for understanding and meaning. Hence, while Mrs. Smith understands the meaning of her art-excitement (positive in one case and negative in the other) Roby understands nothing! Similarly, in contrast to the racing car itself, which does not understand that it has won the most important competition in the world, the human racing-driver celebrates the full meaning of the glorious victory.

Given the above, it is instructive to bring here an example of the opposite approach that I cannot accept. Consider the integrated information theory (IIT) of consciousness (e.g., Tononi, 2015; Tononi, Boly, Massimini & Koch, 2016; for a review see Fallon 2019). According to IIT, consciousness is founded on the neurophysiology of the brain. On this basis, then, it may be argued that consciousness can be measured by means of standard scientific units and that it is possible to construct a mechanical system that meets all the requirements of the IIT – a device that has consciousness. This possibility conflicts with most people's intuition, common sense and my own approach as stated above (for similar criticisms see Reggia, 2013). However, the response of Tononi, Boly, Massimini, and Koch (2016) is very interesting as they are willing to accept that possibility: "Intriguingly, IIT allows for certain simple systems, such as grid-like architectures, similar to topographically organized areas in the human posterior cortex, to be highly conscious even when not engaging in any intelligent behavior." (p. 460).

As can be seen, T_c and its technology create extremely negative ramifications (and I deliberately refrained from discussing the horrifying possibility that with the help of the T_c and its technology it would be possible to produce robots with consciousness!). Can these ramifications be interpreted positively? For example, one may suggest that the loss of individuality and privacy lead to the elimination of depression due to loneliness, and that other mental disorders may be treated with certain appropriate pills. However, such improvements do not approach, in my opinion, to the weight of the negative ramifications described above. Even if we assume that the theoretical problems raised here against T_c are not so decisive, still the world that will be created after the discovery of T_c is terrible! It will be based on the destruction of the civilizations we knew and will be replaced by a world full of flat people with each of them losing his/her unique personality.

Discussion

What I have described above is sufficient to show that the T_c raises a whole host of problems that interfere with the aim of scientific research to discover T_c. How can we respond to the negative-ramifications that emerge from T_c? Here are some considerations.

First, researchers may look for flaws in the logic of the negative-ramifications presented here. If such flaws are found, the goal of developing T_c will be encouraged.

Second, if no flaws are found to discount these negative-ramifications, scholars may respond by suggesting that these ramifications are based on speculations that certain events will occur given particular conditions, and as such they are not compelling as logical proofs. Thus, it can be argued that the propositions of these hypothetical consequences are not equivalent in status to mathematical or geometrical proofs, such as in Euclidean geometry, whereby the sum of the angles in a triangle must be equal to 180 degrees. Clearly, T_c is not similar to a law in Euclidean geometry. Therefore, it makes sense to continue working hard to discover the mechanism that links the neurophysiology of the brain with consciousness. If successful, we may worry later about the negative-ramifications that were raised above, and any others that may emerge.

Third, researchers may suggest that research on the relationship between the neurophysiology of the brain and consciousness has reached a dead end and that it is time to look for entirely different ways to explain consciousness – perhaps by striving to discover the “hidden energy” suggested above.

In view of the above, the following question arises now: How should consciousness be treated in the present? I propose that it may be useful to methodologically conceive of consciousness as a basic explanatory factor of behavior. This contradicts Kim (2002) who

suggests that conscious experience is an epiphenomenon. I suggest a reversed epiphenomenalism, whereby consciousness can affect behavior and should be regarded as an explanatory concept, precisely because a satisfactory explanation for it has not been found. That is to say, the T_c has not yet been discovered that explains consciousness in terms of its interaction with the neurophysiology of the brain. Similarly, Cleeremans & Tallon-Baudry (2022) propose that consciousness has an intrinsic value that affects behavior: "Instead, we claim that phenomenal experience has a function because it has intrinsic value. And things that have value typically have a function and contribute to guiding behavior." (p. 2).

Given the above, let us consider consciousness as an essential theoretical explanatory concept that cannot be explained by more basic concepts. This proposal requires the following clarifications. First, I do not suggest here (unlike the previous suggestion about “hidden energy”) that because there has been no explanation for the problem of consciousness it is reasonable to assume that consciousness may be considered an entirely novel force in nature. Such an assumption would create enormous confusion in the conventional infrastructure of mechanistic explanations (e.g., conservation laws would probably have to be changed) (for similar arguments see Carroll, 2016).

Second, I do not claim that consciousness is completely independent of physical brain processes. Rather, I wish to emphasize over again that no theory has yet been found that explains the relationship between the two. I only propose that consciousness is an explanatory but unexplained concept.

In view of this discussion, I suggest that the fundamental qualities of consciousness are as follows:

1. Consciousness exists, to varying degrees, in every individual;

2. Only the individual is consciously aware of the content of the various representations that appear in his/her own mind;

3. Without consciousness, human beings will function at a level similar to a person immersed in a deep coma;

4. Consciousness is dependent on the normal functioning of the brain;

5. Consciousness affects one's behavioral functioning;

6. Consciousness is influenced by physical events; for example, sensory stimuli such as light and sound elicit conscious feelings typically related to these stimuli (sight and hearing);

7. Consciousness is a necessary condition for meaning and understanding, and without it human life as we know it will disappear.

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