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**The Mind-Body Problem:
A Critique of Type Identity Theory**

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Abstract

Type identity theory was dismissed in 1967 by many philosophers due to Hilary Putnam's multiple realizability objection seeming fatal. This paper delves into a critique of type identity theory, thereby paving the way for introducing an alternative theory of mind: emergentism. The longstanding philosophical discourse around the mind has been dominated by the binary opposition of classical physicalist and dualist theories. However, the impact of scientific discovery on contemporary thought has sparked an increasing inclination towards reductive physicalist frameworks, with the aim of aligning with the scientific method. Thus, contemporary thinkers have branched out to explore new physicalistic ideas. This paper examines the inherent challenges in all reductive physicalist theories, shedding light on their limitations and proposing potential solutions to overcome the obstacles. This analysis demonstrates that type identity theory, akin to its reductive counterparts, fails to accommodate for the irreducibility of consciousness. This is consciousness as characterised by Thomas Nagel's "what is it likeness" of experience, which is inherently subjective. Instead, this paper contends that emergentism offers a compelling alternative despite being a physicalist theory. It posits consciousness as a higher-order phenomenon, one that transcends reduction to its constituent components. I argue that this attribute of emergentism makes it a promising theory in the ongoing quest for an understanding of the mind and consciousness.

Introduction

Type identity theory, a model of the mind, has been criticised by philosophers, particularly due to the multiple realizability objection. The argument presented in this paper aims to demonstrate that type identity theory is not disproven by the multiple realizability objection but rather faces a more universal challenge that the explanatory gap poses. Whilst type identity theory is unable to avoid the explanatory gap, emergentism appears as a promising alternative. Emergentism can remain a physicalist theory, which is empirically testable, unlike type identity theory, whilst taking The Knowledge Argument by Frank Jackson as well as the Cartesian intuition of a mind seriously.

Key Terminology

Understanding the mind-body problem is crucial to grasp the relevance of type identity theory. This problem centres on the question of whether the mind is identical to the body or brain, or if it is a separate entity. Dualism and physicalism are two opposing views on this matter. Physicalism posits that everything, including the mind, is made up of physical components.¹ In contrast, dualism maintains that there are two types of substances: the physical and the mental.² Type identity theory, a physicalist theory, recognizes the significance of the mind and mental phenomena by describing them in physical terms.³ Physicalists should strive to explain the world in ways that can be empirically proven.

In order to fully grapple with the mind-body problem, type identity theory, and philosophy of mind as a whole, another key aspect of the mind must also be understood: consciousness. Consciousness is often misunderstood. It can often be interpreted as a myriad of things, for example, alertness, knowledge, and wakefulness. All these intuitively seem right due to the word's colloquial use; however, within this paper, 'consciousness' refers to the subjective character of experience, or as Nagel puts it, the "what is it likeness" of something.⁴ An example of consciousness is the what-is-it-likeness of seeing red or feeling pain. Consciousness refers to the phenomenal experiences that we have especially the distinct aspect of experience. Another way to understand

¹ Stoljar, Daniel. "Physicalism." *Stanford Encyclopedia of Philosophy*, Stanford University, 2015, plato.stanford.edu/entries/physicalism/. Accessed 7 Dec. 2022.

² Robinson, Howard. "Dualism." *Stanford Encyclopedia of Philosophy*, 11 Sept. 2020, plato.stanford.edu/entries/dualism/. Accessed 5 Dec. 2023.

³ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

⁴ Nagel, Thomas. "What Is It Like to Be a Bat?" *The Philosophical Review*, vol. 83, no. 4, 1974, pp. 435–450, <https://doi.org/10.2307/2183914>. Accessed 5 Nov. 2022.

consciousness is by thinking of consciousness as a spectrum.⁵ On one end of the spectrum, there are highly phenomenal states; on the opposite end, there are weakly phenomenal states. For example, the mental state of pain is highly phenomenal. There is a very distinct what-is-it-likeness of feeling pain. Conversely, the mental state of belief falls on the weaker end, where there is a less distinct what-is-it-likeness of believing that something is the case. Consciousness, thereby, is the difference we can spot between the highly phenomenal and the weakly phenomenal.

In order to understand the rationale of the type identity theory, it is important to distinguish between the concepts of causation, correlation, and identity. To illustrate these distinctions, three examples will be considered.

Causation

During a hot summer month, the earth receives large amounts of heat via radiation from the sun due to its rotation. This heat transfer can cause sunburns. Here, a causal relationship exists between the heat radiating from the sun and the occurrence of sunburns. The former is the cause, and the latter is the effect.

Correlation

Suppose a computer playing a video runs out of battery, that can result in two events: no sound comes out of the computer and the video stops playing. Although the video on the screen goes dark and the sound stops at the same time, they are not causally related. They are not identical; rather, they are merely correlated.

Identity

When a weatherman reports a high likelihood of lightning, there is often an electric discharge between clouds and the ground. Why does this occur? The answer lies in the fact that lightning is identical to electric discharge.⁶ Therefore, whenever there is lightning there must also be electric discharge between clouds and the ground.

⁵ David John Chalmers. *The Conscious Mind: In Search of a Fundamental Theory*. New York, Oxford University Press, 1996.

⁶ Levine, Joseph. "MATERIALISM and QUALIA: THE EXPLANATORY GAP." *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

Type Identity Theory

Type identity theory postulates a relationship of identity between mental states and brain states. Unlike previous physicalist reductionist theories, the type identity theory aims to integrate both the concept of mind and science. The focus of this theory is on quantitative identity; it argues that specific mental states are quantitatively identical to specific brain states, similar to how electric discharge is quantitatively identical to lightning.⁷

To understand this theory, it is also important to distinguish between mental states and brain states. Mental states are highly conscious states, such as pain. In contrast, brain states refer to the neural processes occurring within the brain, such as CF-fibres firing.⁸ Moreover, it is crucial to note that the type identity theorist is not claiming that mental states are identical on a qualitative level to brain states. Instead, the type identity theorist asserts that they are quantitatively identical.⁹ For instance, consider two cups of coffee that taste identical in all ways and qualities. They are not the same cup of coffee, but they are qualitatively identical. In contrast, if one cup of coffee is referred to in two different ways, it is still quantitatively the same cup of coffee. Similarly, mental states and brain states are quantitatively identical, despite having different properties. The example of Clark Kent and Superman helps to clarify this point. Superman possesses the ability to fly, while Clark Kent is a journalist for the Daily Planet newspaper. Although Clark Kent and Superman have different properties and characteristics, the two names refer to the same individual, demonstrating that they are quantitatively identical.¹⁰ The same applies to mental states and brain states.

Mental states are identical to brain states thesis:

⁷ Levine, Joseph. "MATERIALISM and QUALIA: THE EXPLANATORY GAP." *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

⁸ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

⁹ Lewis, David K. "An Argument for the Identity Theory." *Journal of Philosophy*, vol. 63, no. 1, 1966, pp. 17–25, www.pdcnet.org/jphil/content/jphil_1966_0063_0001_0017_0025, <https://doi.org/10.2307/2024524>. Accessed 13 Dec. 2022.

¹⁰ Kripke, Saul A. *Naming and Necessity*. Malden Ma, Blackwell, 1980, pp. 144-155. Accessed 28 Nov. 2022.

“For each type *M* of mental event that occurs to an organism *O*, there exists a brain state of kind *B*. This means that *M* occurs to *O* at time *T* iff *B* occurs to *O* at *T* as *M* and *B* are quantitatively identical.”¹¹

Thus, applying this back to mental states and brain states. We can say for example that pain, a mental state that is highly phenomenal, is identical to CF-fibres firing, a brain state, and so pain occurs iff CF-fibres occur.

“Pain = CF-fibres firing
Therefore, pain will occur iff CF-fibres are firing.”¹²

Arguments for Type Identity Theory

Two compelling arguments can be made for type identity theory, the first grounded in general philosophical principles, and the second in causation. The first argument is based on the principle of Occam’s razor, which is commonly used to evaluate the effectiveness of competing hypotheses, with the simplest hypothesis being favoured. This principle consists of two components: Principle (I) “Entities must not be multiplied beyond necessity” and Principle (II) “What can be done with fewer assumptions should not be done with more.”¹³ J.J.C. Smart argues that type identity theory provides the most parsimonious ontology in comparison to other theories, such as Cartesian dualism, while still accounting for the mind, unlike materialism.¹⁴ Unlike dualistic theories, which posit the existence of both material and mental substances, type identity theory maintains that mental states and brain states are one and the same. This perspective reduces the two “entities” of the physical and mental worlds to one “entity,” namely, quantitatively identical brain states and mental states.¹⁵ This reductionism still accounts for the mind and consciousness, which are necessary components, as illustrated by Nagel.¹⁶ Smart argues that type identity theory simplifies the mind and body to only the necessary components by requiring only one level of

¹¹ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

¹² Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

¹³ Baker, Alan. “Simplicity.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2016, plato.stanford.edu/entries/simplicity/. Accessed 22 Dec. 2022.

¹⁴ “The Mind/Brain Identity Theory.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2017, plato.stanford.edu/entries/mind-identity/. Accessed 13 Dec. 2022.

¹⁵ Baker, Alan. “Simplicity.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2016, plato.stanford.edu/entries/simplicity/. Accessed 22 Dec. 2022.

¹⁶ Nagel, Thomas. “What Is It like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4, 1974, pp. 435–450, <https://doi.org/10.2307/2183914>. Accessed 5 Nov. 2022.

description, such as physical descriptors, to explain both mental and physical states.¹⁷ This ontological simplicity is linguistically simpler and more efficient, as it does not entail any unnecessary assumptions about mental substances and mental descriptors and avoids Principle (I).¹⁸ Thus, type identity theory removes any unnecessary “assumptions” while accounting for the mind and consciousness and adheres to Principle (II). Smart’s claim that pain is nothing “over and above” CF-fibers, implies that pain and CF-fibers are quantitatively identical, removing any unnecessary entities. Thus, type identity theory is a favourable hypothesis as it is ontologically simple and does not assume what is more than necessary. It is in line with the principle of Occam’s razor and provides an efficient solution to the mind-body problem.

The second argument for type identity theory is as follows:

“(P1) Mental phenomena have effects on the physical world.

(P2) The physical world is causally closed.

(C1) Mental phenomena must be quantitatively identical to physical phenomena.”¹⁹

P1:

It is undoubtedly certain that mental phenomena have an effect on the physical world. Epiphenomenalists would be the main and possibly only objectors to this premise; however, it is an untenable position to maintain as this premise is evident on a day-to-day basis.²⁰ Take the following example. I have the belief that it is going to rain today, so I do the physical action of taking an umbrella with me when I go out.²¹ Or take this example, I feel emotional pain that is not physical, that will cause the physical reaction of tears. As Richard Taylor argues it

¹⁷ Smart, J. J. C. “Sensations and Brain Processes.” *The Philosophical Review*, vol. 68, no. 2, 1959, pp. 141–156, www.jstor.org/stable/2182164, <https://doi.org/10.2307/2182164>. Accessed 26 Dec. 2022.

¹⁸ Baker, Alan. “Simplicity.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2016, plato.stanford.edu/entries/simplicity/. Accessed 22 Dec. 2022.

¹⁹ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

²⁰ Robinson, William. “Epiphenomenalism.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2019, plato.stanford.edu/entries/epiphenomenalism/. Accessed 17 Dec. 2022.

²¹ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

would be impossible for our physical phenomena to be unchanged when pains, beliefs, and other mental states are removed from consideration.²²

The argument of self-stultification is another extremely fatal argument against epiphenomenalism. This argument rejects epiphenomenalism because it is incompatible with the knowledge of our own minds. The argument can be shown like this:

“(P1) Epiphenomenalists reject any physical effects of mental events.

(P2) To have knowledge of one’s own mental states and events necessitates that these events have caused one’s own knowledge.

(C1) Thus epiphenomenalists are unable to maintain their position under the knowledge of other minds.”²³

Take for example **P** who is an Epiphenomalist is in a mental state of pain and yells that they are ‘in pain.’ However, **P** as an epiphenomenalist must not know of their own mental events as mental states do not cause any physical effects (such as yelling that they are in pain). That would mean that yelling ‘I am in pain’ can occur whether **P** is in a mental state of pain due to (P1). Thus, this renders **P**’s comments useless if epiphenomenalism is true. In this case, for **P** there are two choices, the first being that we do not have any insight into our own mental events which is intuitively untrue and concerning, or the second that knowledge of our own mental events cannot cause the physical event of us saying something about our mental events which I have shown that going this direction would render **P**’s comments on their mental events useless and thus deem **P** as a philosophical zombie which is equally troublesome due to Nagel’s idea of consciousness²⁴ and Jackson’s knowledge argument.²⁵ Thus, I have shown through these two arguments that (P1) must be sustained and that epiphenomenalistic objections are unsuccessful.

²² Taylor, Richard. “The Stream of Thoughts versus Mental Acts.” *The Philosophical Quarterly*, vol. 13, no. 53, Oct. 1963, p. 311, <https://doi.org/10.2307/2955525>. Accessed 8 Feb. 2023.

²³ Robinson, William. “Epiphenomenalism.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2019, plato.stanford.edu/entries/epiphenomenalism/. Accessed 17 Dec. 2022.

²⁴ Nagel, Thomas. “What Is It Like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4, 1974, pp. 435–450, <https://doi.org/10.2307/2183914>. Accessed 5 Nov. 2022.

²⁵ Jackson, Frank. “Epiphenomenal Qualia.” *The Philosophical Quarterly*, vol. 32, no. 127, Apr. 1982, pp. 127–136, <https://doi.org/10.2307/2960077>.

P2:

The concept of causal closure of the physical world posits that every physical event is causally determined by prior physical events, without any need for a non-physical cause. This notion is commonly accepted by physicalists, who maintain that the world is entirely composed of physical entities. Whilst Cartesian dualists may object to this premise, the interactionist position faces its own challenges, as it lacks convincing arguments to explain how mental and physical entities can exist as entirely distinct substances and domains yet interact with one another. In light of the aforementioned challenges, it is evident that the Cartesian theory of mind-body interaction is highly problematic and so the principle of causal closure remains a tenable premise as explaining a mental-physical casual chain is problematic.

C1:

So, if **(P1)** and **(P2)** are sustained then the only way to account for both premises is to say that physical events are the only cause of mental events and so mental states, and physical states must be intrinsically linked and thus quantitatively identical in order to maintain both premises.²⁶ Thus, mental phenomena must be quantitatively identical to physical phenomena.

Multiple Realisability

The objection of multiple realisability, widely used against type identity theory theorists, played a critical role in the shift towards functionalism. However, it is my contention that this objection is ultimately unsuccessful for a few reasons.

The multiple realisability argument, essentially, posits that a given mental state can be realised in various distinct physical states. This appears to contradict type identity theory, which maintains that a mental state can only be expressed in one specific type of physical state.²⁷ Thus, this contradiction arguably weakens the type identity theory theorist's stance. Hilary Putnam argues that multiple realisability is apparent when one considers other animal species.²⁸ For instance, the experience of pain can be realised by various physical states in different organisms, such as an octopus with a vastly different biological structure from

²⁶ Holvoet, Carlos. "The Rediscovery of the Mind. Cambridge, Mass., and London: MIT, a Bradford Book, 1992. John R. Searle." *Philosophica*, vol. 53, no. 0, 2 Jan. 1994, <https://doi.org/10.21825/philosophica.82374>. Accessed 1 Dec. 2022.

²⁷ Putnam, Hilary. "The Nature of Mental States." *Philosophical Papers*, Vol. 2, Cambridge University Press, Cambridge, 1975, pp. 429–440. Accessed 18 Dec. 2022.

²⁸ Putnam, Hilary. "The Nature of Mental States." *Philosophical Papers*, Vol. 2, Cambridge University Press, Cambridge, 1975, pp. 429–440. Accessed 18 Dec. 2022.

humans. For the octopus, the brain state that corresponds to pain can be designated as ‘B-fibres.’²⁹ While the mental state that is quantitatively identical to ‘B-fibres’ is the experience of pain. Similarly, the brain state of a human that feels pain can be labeled as ‘CF-fibres,’ and the mental state that corresponds to ‘CF-fibres’ is also the experience of pain. Thus, the same mental state of pain can be realised by two different species with two entirely distinct brain states, CF-fibres, and B-fibres, rendering the type identity theory invalid.

However, I argue that the multiple realisability objection fails when realising that type identity theory is merely stating that a particular mental state is quantitatively identical to a particular physical state and so the idea that states can multiply realised does not matter.³⁰ This quantitative identity between mental and brain states is not affected by the physical realisation of states. The multiple realisability objection as its name alludes to only attacks the fact that the same mental state can be realised in a multitude of ways.³¹ However, this is not a problem for the type identity theory theorist as it does not take away from the fact that there is a mental state that is identical to a certain physical state because different physical realisations of a mental state do not need to be identical to one another.³²

If we return to the original hypothesis of:

For each type **M** of mental state that occurs to an organism **O**, there exists a brain state of kind **B**. This means that **M** occurs to **O** at time **T** iff **B** occurs to **O** at **T** as **M** and **B** are quantitatively identical.³³

If we take the case of pain and characterise **M** as the umbrella term for the mental state of pain and **B** as the umbrella term for the brain state of pain. We can see how this model of thinking is unaffected by the idea of multiple realisability. All animals have a physical/brain state of pain that is identical to the mental state of pain, so if we simply disregard **Pain = CF-fibres** and rather think of **M = B** then the multiple

²⁹ Putnam, Hilary. “The Nature of Mental States.” *Philosophical Papers*, Vol. 2, Cambridge University Press, Cambridge, 1975, pp. 429–440. Accessed 18 Dec. 2022.

³⁰ “The Mind/Brain Identity Theory.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2017, plato.stanford.edu/entries/mind-identity/. Accessed 13 Dec. 2022.

³¹ Putnam, Hilary. “The Nature of Mental States.” *Philosophical Papers*, Vol. 2, Cambridge University Press, Cambridge, 1975, pp. 429–440. Accessed 18 Dec. 2022.

³² McCauley, Robert N., and William Bechtel. “Explanatory Pluralism and Heuristic Identity Theory.” *Theory & Psychology*, vol. 11, no. 6, Dec. 2001, pp. 736–760, <https://doi.org/10.1177/0959354301116002>. Accessed 11 Dec. 2022.

³³ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

realizability objection fails and the type identity theory still stands. Moreover, this differentiation of realisation and states can also be used in differentiating states in different systems. Multiple realizability's main objection is how mental states such as pain can be identical to different brain states. However, this objection assumes that the type identity theory theorist believes that mental states do not differ from system to system. Returning to the key premise that mental states are identical to brain states and the premise that brain states can differ from system to system, why should mental states not also differ from system to system? For example, CF-fibres are identical to the mental state of pain in humans just as B-fibres are identical to the mental state of pain in octopuses. All the type identity theory theorists must do is simply specify states to specific systems.

David Lewis illustrates this solution through the following example:

“

1. There is one winning lottery ticket
2. The winning ticket is 93
3. The winning ticket is 31

”³⁴

Thus, a contradiction arises.

Type identity theory:

“

- (1') There is only one physical realisation of pain.
- (2') The physical-chemical realisation of pain is CF-fibre firing.
- (3') The physical-chemical realisation of pain is ... (something else entirely).

”³⁵

Thus, a contradiction arises.

³⁴ “The Mind/Brain Identity Theory.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2017, plato.stanford.edu/entries/mind-identity/. Accessed 13 Dec. 2022.

³⁵ “The Mind/Brain Identity Theory.” *Stanford Encyclopedia of Philosophy*, Stanford University, 2017, plato.stanford.edu/entries/mind-identity/. Accessed 13 Dec. 2022.

Lewis argues that all that needs to be done here for the type identity theorist is to specify. The lottery example can get rid of a contradiction by simply stating in (1) that ‘There is one lottery ticket per week’ and specify which week lottery tickets (2) and (3) are for.³⁶ Similarly, for the type identity theorist, it is simply a matter of specifying that ‘there is only one physical realisation of pain for each system’ and specifying what systems are for (2’) and (3’).³⁷ It is clear here that the multiple realizability theory simply induces a small alteration that can be made to the type identity theorist’s argument which instead of weakening type identity theory makes it a more detailed theory.

Bigger Problems with Type Identity Theory

Type Identity Theory has long been troubled by the problem of multiple realizability. However, as I have shown the two ideas are not incompatible. Instead, a more pressing threat to type identity theory arises from the explanatory gap, which asserts that there exists an insurmountable disparity between mental and physical states, rendering them irreconcilable under any physicalist theory.

The explanatory gap was first conceptualised by David Levine, who argued that humans seek physical explanations for their world. For instance, in the case of lightning, we no longer ascribe it to divine wrath but instead understand it as a natural electric discharge in clouds.³⁸ This identity appears to be a fundamental truth that we cannot conceive of otherwise. In contrast, when it comes to the mind and consciousness, we encounter an explanatory gap that defies physical explanation.

For example, if we again take the example of (Pain = CF-fibre stimulation), it appears we have an identity. However, we can see that this is not the case when we compare this false identity to the true identity (Lightning = Electric discharge). Think of the physical story of lightning. We can picture how friction within the clouds causes electric discharge, this charge is attracted to the opposite charge on the ground, causing lightning. However, when we take the case of pain, a physical story is missing; there is no satisfactory physical explanation of what is

³⁶ Lewis, David. “Art, Mind, and Religion.” *Journal of Philosophy*, vol. 66, no. 1, 1969, pp. 22–27, <https://doi.org/10.2307/2024154>.

³⁷ Lewis, David. “Art, Mind, and Religion.” *Journal of Philosophy*, vol. 66, no. 1, 1969, pp. 22–27, <https://doi.org/10.2307/2024154>.

³⁸ Levine, Joseph. “MATERIALISM and QUALIA: THE EXPLANATORY GAP.” *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

going on. The relationship between the two is completely opaque.³⁹ There is no physical explanation for why certain mental states correlate with certain brain states. Thus, Levine posits that there might be a need for a nonphysical explanation of consciousness as physicalist explanations like type identity theory lack the explanatory power needed to bridge this explanatory gap.⁴⁰

Ned Block similarly argues that type identity theory fails to bridge the explanatory gap as it does not explain how physical states give rise to subjective experience.⁴¹ It simply states that the two are identical but does not explain why or how. For example, in the case of Pain = CF-fibres, CF-fibres could be causing any other sensation other than pain. Why are CF-fibres, not the brain state that causes the mental state of beliefs, desires, or any other mental state for that matter? There is no physical explanation for why certain mental states and certain brain states have an identity and thus there is also no substantiated explanation for consciousness that can be given under the type identity theorist's model of the mind.

Moreover, the theory does not account for the subjectivity of mental states and thereby subjective experiences. For example, it does not explain why two people can experience the same physical state, i.e., watching a movie, but have different mental states such as, one feeling pain and sadness or the other feeling happiness.

Similarly, type identity theory fails to explain the causal relationships between physical states and mental states. The mental state of belief has the physical state of 'B-fibres.' If we assume this identity to be true, what knowledge of causal relationships or insights into consciousness can be gained? It appears as though there is very little knowledge that can be derived. If I have the mental state of belief that it is going to rain and thereby have the physical state of 'B-fibres' where in this model of the mind is there a cause that makes me take an umbrella before I leave the house? Type identity theory could be a philosophically

³⁹ Levine, Joseph. "MATERIALISM and QUALIA: THE EXPLANATORY GAP." *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

⁴⁰ Levine, Joseph. "MATERIALISM and QUALIA: THE EXPLANATORY GAP." *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

⁴¹ Ned Joel Block, et al. *The Nature of Consciousness: Philosophical Debates / The Nature of Consciousness: Philosophical Debates*. Cambridge, Mass., MIT Press, 1997. Accessed 27 Dec. 2022.

valid model of the mental and physical, however, it lacks the crucial factor of having the explanatory power to allow us to explain mental phenomena rendering the model useless.

Furthermore, this lack of explanatory power means no set model can account for all aspects of the mental. What I mean by this is that if I want to account for the mental state of pain, I need to posit CF-fibres and if I want to account for the mental state of beliefs, I need to posit B-fibres and similarly if I want to account for the physical feeling of an itch, I also thereby need to posit a mental state that is a mental correlate of this physical state of an itch. This negates the argument that Smart proposes for type identity theory about its simplicity, there is an almost uncountable number of mental states and brain states due to their subjective nature and so there also needs to be an almost uncountable number of posited identities and thereby an uncountable amount of 'entities' which can clearly be deemed unnecessary and thus failing to comply with Occam's razor.⁴² Thus, another positive argument for type identity theory fails.

Additionally, type identity theory whilst originally aiming to allow science and the mind to coexist fails to allow for empirical testing. Whilst being a physicalist theory it fails to achieve what most physicalists wish for which is a theory of the mind that can be backed by scientific evidence. This is because there is no feasible way to test the scientific validity of type identity theory as there are no explanations or ideas to be derived from the theory and so thereby that means there are no explanations to be tested. The theory simply dwells on the idea of identity which is very much an a priori piece of knowledge than anything else and so cannot be tested empirically but only can be deduced through logic.

However, type identity theorists may object arguing that specific psycho-neural identities like 'pains are CF-fibre excitations' are empirical truths that can be discovered and tested through empirical testing and research. But to argue that an identity is an empirical truth and not an a priori knowledge means that the two parts of said identity need to have independent criteria of application.⁴³ So, to argue that pain = CF-fibres there would need to be a criterion of pain that is beyond CF-fibres and vice versa, or else it would be an a priori knowledge of identity and thereby cannot be empirically tested. The clearest criterion for pain

⁴² Baker, Alan. "Simplicity." *Stanford Encyclopedia of Philosophy*, Stanford University, 2016, plato.stanford.edu/entries/simplicity/. Accessed 22 Dec. 2022.

⁴³ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

would be the phenomenal and qualitative aspect of it that is distinct from neural properties.⁴⁴ However, as shown through the explanatory gap and the myriad of arguments above, type identity theory cannot grapple with and account for subjective experience and thereby cannot claim that identities such as pain = CF-fibres can be empirically tested as the only founding that claim lies in consciousness. Therefore, type identity theory is not satisfactory for most physicalists even if the concept of mental and brain state identity is a satisfactory theory philosophically. However, as I have also shown there are many issues with type identity theories' philosophical reasoning, and since there are so many negative arguments for type identity theory and many objections to the positive ones, it is clear that type identity theory is not a satisfactory theory even after excluding the multiple realizability objection.

Emergentism

Emergentism however offers a solution to the problems type identity theory faces: accounting for consciousness, lacking explanatory power, and the impossibility of empirical verification. Emergentism argues that certain properties of complex systems, such as the mind, cannot be fully explained by the properties of their individual parts alone such as neurons or neurotransmitters, but instead arise from the interactions and relationships between those parts.⁴⁵ Higher-level phenomena cannot be reduced nor deduced from their lower-level domains.⁴⁶ To illustrate this better, imagine a tornado. This tornado may have picked up cars, trees, and branches with its strong gust. However, this tornado, a high-level phenomenon cannot be identified or reduced into these micro-components.⁴⁷

Similarly, in the case of the property of consciousness, emergentism argues that consciousness is an emergent property that arises from the complex interactions between physical processes and thus is why many physicalist theories have failed to account for the

⁴⁴ Kim, Jaegwon. *Philosophy of Mind*. 3rd ed., Boulder (Colo.), Westview Press, 2010. Accessed 15 Dec. 2022.

⁴⁵ O'Connor, Timothy, and Hong Yu Wong. "Emergent Properties." *Stanford Encyclopedia of Philosophy*, Stanford University, 2015, plato.stanford.edu/entries/properties-emergent/. Accessed 22 Jan. 2022.

⁴⁶ Chalmers, David. "Strong and Weak Emergence." *The Re-Emergence of Emergence*, 15 May 2008, pp. 244–254, <https://doi.org/10.1093/acprof:oso/9780199544318.003.0011>. Accessed 31 Dec. 2022.

⁴⁷ O'Connor, Timothy, and Hong Yu Wong. "Emergent Properties." *Stanford Encyclopedia of Philosophy*, Stanford University, 2015, plato.stanford.edu/entries/properties-emergent/. Accessed 22 Jan. 2022.

higher-level phenomena of the mind such as consciousness as it is an emergent property and so cannot be explained by its lower physical domain.⁴⁸

Emergentism unlike type identity theory accounts for the distinctiveness of experience and the qualities that phenomenal experiences have and thus subsequently avoids the explanatory gap. Consciousness as explained by Nagel is the ‘what is it likeness’ of experience, the distinct feeling of experience.⁴⁹ Another way of thinking about the distinctness of conscious experience and qualia is that from experience can come information that is not already known from physical knowledge. This is best illustrated by Jackson’s Mary’s room thought experiment.⁵⁰ Mary is a colour scientist in a room where the entire world is in black and white.⁵¹ Mary knows all the physical and scientific knowledge there is to know about the colour red from its wavelength of light all the way to the emotions it induces in animals.⁵² The question then becomes whether Mary learns anything new when she leaves the room and enters the coloured world and sees the colour red for the first time. Intuitively it seems that there is some external knowledge gained upon the experience of seeing red than when it is only studied and understood regarding its physical qualities and attributes.

Emergentism can explain the distinct knowledge gained from experience as shown by Jackson as well as the ‘what is it likeness’ of experience.⁵³ This is because emergent properties are non-existent in the individual physical components of the world. When Mary learns of all the scientific knowledge and observation there is to know about the colour ‘Red’ Mary is unable to obtain the emergent knowledge that comes separately with the experience of red. This is because all Mary knows is the lower-level physical domain from which she cannot derive this distinct knowledge as consciousness is an emergent higher-level phenomenon and cannot be reduced to the physical nor deduced from

⁴⁸ Chalmers, David. “Strong and Weak Emergence.” *The Re-Emergence of Emergence*, 15 May 2008, pp. 244–254, <https://doi.org/10.1093/acprof:oso/9780199544318.003.0011>. Accessed 31 Dec. 2022.

⁴⁹ Nagel, Thomas. “What Is It like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4, 1974, pp. 435–450, <https://doi.org/10.2307/2183914>. Accessed 5 Nov. 2022.

⁵⁰ Jackson, Frank. “Epiphenomenal Qualia.” *The Philosophical Quarterly*, vol. 32, no. 127, Apr. 1982, pp. 127–136, <https://doi.org/10.2307/2960077>.

⁵¹ Jackson, Frank. “Epiphenomenal Qualia.” *The Philosophical Quarterly*, vol. 32, no. 127, Apr. 1982, pp. 127–136, <https://doi.org/10.2307/2960077>

⁵² Jackson, Frank. “Epiphenomenal Qualia.” *The Philosophical Quarterly*, vol. 32, no. 127, Apr. 1982, pp. 127–136, <https://doi.org/10.2307/2960077>

⁵³ Nagel, Thomas. “What Is It like to Be a Bat?” *The Philosophical Review*, vol. 83, no. 4, 1974, pp. 435–450, <https://doi.org/10.2307/2183914>. Accessed 5 Nov. 2022.

it.⁵⁴ This emergentist theory of mind can account for consciousness, successfully evades the explanatory gap, and is strengthened by real-world evidence it is clear that these properties are not opaque, unlike the identities in type identity theory.⁵⁵ As Levine proposes within our world many things are deduced and understood through physical explanations but when it comes to consciousness and the mind there is a gap in physicalist explanations and thus their theories. Emergentism can bridge this gap as it accounts for consciousness and has a physical story. Take ants in a colony. Each ant is its own being, however, often observed is that without communication these ants with their own individual brains can self-organise and coordinate. Collectively they have the emergent property of self-organisation.⁵⁶ Within the empirical world, it is evident that physical entities which have certain brain functions can have much more complex and distinct characteristics.⁵⁷ Similarly, with consciousness, the physical domain of neurotransmitters and neurons whilst being simple biological cells or molecules that have certain cognitive functions are in a complex system that organises and arises into something distinct which we come to know as consciousness. Indeed, emergentism can bridge the explanatory gap and explain why it exists, something that type identity theory fails to achieve.

Moreover, as pointed out type identity fails to be a good physicalist theory as its model of the mind cannot be empirically tested by science and physical models. Emergentism on the other hand is capable of this and thus able to bridge the explanatory gap through accounting for consciousness whilst still being able to remain a testable and empirically investigable model of the mind.⁵⁸ This is because if a model of the brain, whether through mathematical, computer, or physical construction is created through the advancement of science, a test to confirm emergentism can be performed by seeing whether or not consciousness emerges from this physically constructed system whose

⁵⁴ Jackson, Frank. "Epiphenomenal Qualia." *The Philosophical Quarterly*, vol. 32, no. 127, Apr. 1982, pp. 127–136, <https://doi.org/10.2307/2960077>.

⁵⁵ Levine, Joseph. "MATERIALISM and QUALIA: THE EXPLANATORY GAP." *Pacific Philosophical Quarterly*, vol. 64, no. 4, Oct. 1983, pp. 354–361, www.newdualism.org/papers/J.Levine/Levine-PPQ1983.pdf, <https://doi.org/10.1111/j.1468-0114.1983.tb00207.x>. Accessed 7 Nov. 2022.

⁵⁶ Klein, Colin, and Andrew B. Barron. "Insect Consciousness: Commitments, Conflicts and Consequences." *Animal Sentience*, vol. 1, no. 9, 28 Nov. 2016, <https://doi.org/10.51291/2377-7478.1181>.

⁵⁷ R Keith Sawyer, et al. *Creativity and Development*. Boulder, Netlibrary, Incorporated, Aug, 2003.

⁵⁸ Klein, Colin, and Andrew B. Barron. "Insect Consciousness: Commitments, Conflicts and Consequences." *Animal Sentience*, vol. 1, no. 9, 28 Nov. 2016, <https://doi.org/10.51291/2377-7478.1181>.

individual components lack consciousness.⁵⁹ If so, then emergentism can be proved as the more probable model for the mind compared to type identity theory as the type identity theorist has no way to test or differentiate between brain states and mental states as that would imply that physical things individually are conscious. Emergentism being empirically testable allows for a possible conclusion to the mind-body problem once science is able to catch up with philosophical inquiry. Even if empirical evidence proves that emergentism is wrong and that consciousness, an emergent property, does not arise from a physically constructed brain that does not mean that emergentism is a useless physicalist model of the mind. Rather it means that we can more definitively than ever before rule out a model of the mind and that has a value in its own right.

Conclusion

Type identity theory fails to be a good physicalist model of the mind in that it cannot be empirically testable, does not account for a key property of the mind, which is consciousness, and fails to bridge the explanatory gap. Emergentism, on the other hand, can account for consciousness, can bridge the explanatory gap, and is empirically testable therefore is the most useful model of the mind or at the very least certainly more convincing than type identity theory. However, more research is needed on whether strong emergence could be a non-physicalist theory and whether radical dualistic ideas such as panpsychism could act as strong competing hypotheses to emergentism.

⁵⁹ R Keith Sawyer, et al. *Creativity and Development*. Boulder, Netlibrary, Incorporated, Aug, 2003.

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