

# Physicalism: A Hypothetical Future

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**How to cite this paper:** Aboites, V. (2024). Physicalism: A Hypothetical Future. *Open Journal of Philosophy*, 14, 152-160. <https://doi.org/10.4236/ojpp.2024.141013>

**Received:** January 20, 2024

**Accepted:** February 20, 2024

**Published:** February 23, 2024

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## Abstract

Considering the most recent advances in artificial intelligence and biomechanics, a hypothetical future of physicalism is explored. It is concluded that a rational and sensible extrapolation of present and expected future advances in those two areas will have vast consequences in the physicalist view. In particular, it is also argued that consciousness cannot be defined in a simple general manner, but only understood through the observable and behavioural actions of humans or sufficiently advanced robots, which may be, at some future time, indistinct. This last result is established by applying what we call Plato's trap, and our main conclusion is a defence of physicalism. It is argued that human beings are robots which soon will be indistinguishable from suitable advanced man-made robots, which will in turn render many philosophical questions and objections to physicalism irrelevant and, in fact, quite similar in sense and importance to some philosophical medieval questions about God, the soul and immortality.

## Keywords

Physicalism, Consciousness, Artificial Intelligence

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## 1. Introduction

Many books and articles have been written about physicalism (Kim, 2005; Soljar, 2010; Elpidorou & Drove, 2020), and undoubtedly, there are many interpretations of this term. In this article, by physicalism, we mean the doctrine that states that everything that is actual is physical. This states the general features of physicalism, therefore; a physicalist world could not contain platonic entities, spirits, angels or Cartesian souls, among other nonphysical entities. Physicalism is the philosophical view that everything in the universe is ultimately made up of physical matter, and that all phenomena, including mental states, consciousness and the mind can be fully explained in terms of physical processes and properties.

According to physicalism, there is no non-physical realm, and everything that exists, including thoughts, emotions and consciousness, can be reduced to and explained by physical interactions and processes (Chalmers, 1996; Dasgupta, 2014; Montero, 2013). Physicalists believe that the laws of physics are sufficient to explain all natural phenomena, including the behavior of living organisms and the workings of the human mind. They also reject the existence of any non-physical entities, such as souls, spirits or supernatural forces that may be used to explain aspects of reality beyond the physical realm.

Some consider that one of the key challenges for physicalism is to account for subjective experiences such as the qualia of perception, which some argue cannot be fully explained by physical processes alone. However, physicalists respond to this challenge by arguing that subjective experiences are ultimately reducible to physical processes.

Physicalism is a popular view among philosophers and scientists who seek to provide a unified and comprehensive explanation of the natural world.

As it is well known, some of the main objections to physicalism include the following:

**The hard problem of consciousness:** Some consider that physicalism struggles to account for subjective experience, or the “qualia” of consciousness, such as the subjective experience of pain or the taste of chocolate. They consider it challenging to explain how subjective experiences can arise from physical processes alone, leading some philosophers to reject physicalism as an incomplete account of the nature of reality.

**The knowledge argument:** This argument proposes that physicalism cannot account for the “knowledge” that comes with subjective experiences, even if they can be fully described in physical terms. For example, they argue that a person who has never tasted chocolate but has read about it extensively could still not fully grasp the subjective experience of tasting it, even with a complete physical description of the experience.

**The problem of mental causation:** If all mental processes and states can be reduced to physical processes, then they consider it difficult to explain how mental states can have any causal power or influence on physical processes. This, they argue, raises questions about how we can make decisions, act intentionally, or even hold people accountable for their actions.

**The problem of other minds:** Some ponder that physicalism struggles to explain how we can know that other people have subjective experiences or consciousness, as we can only directly experience our own consciousness.

Overall, some philosophers consider that the objections to physicalism raise fundamental questions about the nature of consciousness, subjectivity and the relationship between the physical and the mental. These debates continue to shape contemporary philosophy of mind and cognitive science.

On the other hand, physicalists offer several responses to the previous main objections to physicalism, including:

The hard problem of consciousness: Physicalists argue that while subjective experience may be difficult to explain, it is not an insurmountable problem. Some physicalist theories, such as the Integrated Information Theory or the Global Workspace Theory, propose that consciousness arises from complex patterns of neural activity, while others suggest that consciousness may be a fundamental property of the universe, like space and time.

The knowledge argument: Physicalists respond to this argument by pointing out that subjective experiences are not separate from physical processes, but rather are aspects of them. Therefore, a complete physical description of an experience should be sufficient to capture all of its properties.

The problem of mental causation: Physicalists argue that mental states can have causal power without being separate from physical processes. Mental states can be viewed as different levels of explanation that are grounded in physical processes. For example, a decision to move one's arm can be explained both in terms of the firing of neurons in the brain and in terms of the person's intention or desire to move.

The problem of other minds: Physicalists argue that the existence of other minds can be inferred from behavioral and neuroscientific evidence, as well as from the fact that other people are capable of complex language use and can report on their own subjective experiences.

Overall, physicalists offer various responses to the objections to physicalism, but the debates around the nature of consciousness, subjectivity and mental causation continue to be topics of ongoing research and discussion in philosophy and cognitive science. In this article, it is argued that once accepting that everything around us (us included) is guided exclusively by matter and physical laws, the so-called problems of physicalisms are in fact pseudo problems.

## **2. Modern Turing Test with Advanced Robots and Plato's Trap**

Turing's paper "Computing Machinery and Intelligence" (Turing, 1950) opens with the words: "I propose to consider the question, 'Can machines think?'" However since "thinking" is difficult to define, he chose to have this question substituted by another, which he considered to be closely related. In order to do this, he proposed the "imitation game", which is a test of a machine's ability to exhibit intelligent behavior equivalent to or indistinguishable from that of a human. Turing's new question therefore became "Are there imaginable digital computers which would do well in the imitation game?"

As it is known, in the imitation game, which later became known as "Turing test", the conversation between the participants is limited to a text-only channel, such as a computer keyboard and screen. If the participant is not able to reliably distinguish between a machine and a human, then the machine would be said to have passed the test. It is important to stress that the result does not depend on the machine's ability to provide correct answers to questions, but only on how closely its answers resembled those a human would give. The Turing test is a test

of indistinguishability in performance capacity. The capacity of modern's artificial intelligence programs and computers is such that not only in text-only channels, but also with an artificial human-like voice, this test would be successfully passed by most computer systems and artificial intelligence programs of today; that is, humans are unable to distinguish between another human and a computer.

As an example of today AI capabilities, the following article by [Zoe \(2023\)](#) describes "A ChatGPT-style AI assistant, developed by Microsoft and embedded into its office apps". It is interesting to know that both Europe's AI act and China's AI regulations state that people must know if they are interacting with artificial intelligence rather than humans. These regulations show how easy modern Artificial Intelligence systems can cheat and fool humans, making them believe that they are dealing with other humans. This also emphasizes the fact that, nowadays, AI systems are indistinguishable from humans. It is worth remembering that in 1642, Blaise Pascal designed a calculator machine, and four hundred years have passed since Pascale birth. Could anybody at that time have imagined the artificial intelligence machines we have now? Following with this comparison we may ask: Could anyone today imagine the humanoids which will be available in the next four hundred years? We may agree that both of these questions are very speculative, but we may also reflect on how many scientific and technological developments have had a deep impact on our philosophical doubts.

In a similar way to the "Turing test", here, I propose considering the question "What is consciousness?". We know that a general accepted definition of this term is; "the state of being aware of and responsive to one's surroundings". However, before dealing with this question, and following Turing's path, I intend instead to consider the question: "Can machines imitate a being with conscious behavior?", or "Could a machine show a conscious behavior, equivalent to or indistinguishable from that of a human?" Many books and articles about physicalism consider that consciousness is a principal challenge. For example, [Kim \(2005: p. 1\)](#) asks: "Is the mental reducible to the physical? In particular, can we give a reductive physicalist account of consciousness?", concluding that "phenomenal consciousness resists physical reduction"; however, it is not explained what is understood by "physical reduction". For example, from a physicalist point of view, we may understand the behavior of a simple pendulum. Giving its mass, pendulum length and earth gravity acceleration, we may provide a model based on known physical laws, which very precisely describe the period and frequency of the pendulum oscillations that we observe. It is important to underline that a physical reduction must lead to a result which is observable, and not to a metaphysical definition.

As a first test, imagine a being (which may be human or artificial, to which we have no direct access, and which is unaware of our observing it, under the clear assumption that if it is an artificial machine, it is physically indistinguishable from a human, an assumption that is not too far from today's biomechanical

capacities) locked in a room, which is being observed by us (humans). How are we going to determine whether the locked being is human or not? The only possible way to do this is by analyzing its behavior. After a few hours or days, it may become desperate of being alone, and it may start crying or asking for help. After some time, and having pen and paper available, it may start writing a letter to a friend or a poem about how lonely it feels confined in that room, or eventually it might try to commit suicide and even succeed in doing it. The most important thing for our discussion is that, as an artificial entity, anything such being may do may be simply the result of an artificial intelligence program which was precisely designed to imitate the behavior of humans. This program might be so good that it could easily fool human observers.

As a second test, imagine that the being (human or artificial, we do not know) in the previous example is being confined together with a group of humans (who do not know its real identity). We can easily imagine that after some time, some friendship and solidarity links will be established between all the members of this community. Every possible human behavior under these stressful circumstances may be observed among the group of humans and, maybe, non-human beings, such as friendship, love, hate, quarreling, wailing, weeping and the like, and in the case of anyone dying, we may imagine that the locked beings, under careful observation, may show a deep sorrowful behavior. We may add any imaginable circumstance to this test and, as in the first test, the most important thing for our discussion is that being an artificial entity, anything it may do may simply be the result of an artificial intelligence program which was precisely designed to imitate the behavior of humans.

We could easily imagine the behavior of this artificial human-like entity having a behavior that is fully compatible with our human idea of a person with consciousness, fully aware of itself and its circumstances. Our conclusion about these conjectures is that what we call consciousness is nothing else but the result of the behavior of human or artificial entities, but now, we are left with the naked question “What is consciousness?”. An answer may well be that this question does not have a general answer, but even so, we say that someone, or something, has consciousness when it behaves according to the human expectations of someone or something that we deem as having consciousness.

This leads us to what we may call “Plato’s trap”. As we know, in many of his dialogues Plato tried to answer questions such as “What is justice?” or “What is beauty?”, among many others (Plato, 2005).

However, Plato was always careful to distinguish the difference between, let us say, a “just act” or a “beautiful object” and what plain “justice” or “beauty” is, and for the later question, he had no answer. We may ask whether we are not in a similar position when we ask what consciousness is. We cannot answer this question in general, just as we cannot answer the questions of what justice is or what beauty is. It is not possible to provide a universal definition of justice, beauty or consciousness. We can only say that someone (or something) has behaved justly, or that someone or something is beautiful, or that someone (or

something) has displayed a conscious behavior.

It seems very likely that we will develop robots which will be able to fool humans because they will exhibit intelligent behavior equivalent to, or indistinguishable from, that of a conscious human. For any practical purpose, these robots will have consciousness, and this confusion will inevitably lead us to recognize that we, humans, are also nothing else but robotic advanced machines.

### 3. Top Advanced Humanoid Robots

According to Analytics Insight, at this moment (see <https://www.analyticsinsight> and <https://www.pycodemates>, 2023), humanoid robots have been developed to deal with many applications. These robots include the best advancements in artificial intelligence and have been improved in order to resemble humans both in their body and intelligence. At the moment, most applications of these robots include education, entertainment, personal assistance, manufacturing, search and rescue, healthcare and many more. Currently, Asimo, developed by Honda, is considered the world's most advanced robot, whereas Sophia, developed by Hanson Robotics, is the most intelligent (assuming that at this stage of development we can correctly use this word).

#### 3.1. ASIMO

ASIMO, or Advanced Step in Innovative Mobility, is a humanoid robot created for search and rescue missions (see: <https://asimo.honda.com/>); it can recognize moving objects, postures, gestures and the surrounding environment, as well as sounds and faces, allowing it to interact with humans. Asimo has on its head two camera eyes which capture visual information to detect the movement of multiple objects and determine distance and direction. ASIMO can differentiate between voices and other sounds that enable it to recognize its companions. It responds to various questions by nodding and speaking in different languages, and can recognize almost ten different faces and address them by name.

#### 3.2. Sophia

Developed by Hanson Robotics (see: <https://www.hansonrobotics.com/sophia/>), Sophia is the most advanced humanoid robot. It made her debut in 2016, attracting audiences all over the world. Sophia is the world's first robot citizen and the United Nations Development Programme's first robot Innovation Ambassador. She has appeared on several TV shows, such as Tonight Show and Good Morning Britain, and it has delivered speeches at hundreds of conferences worldwide. In understanding human-robot interactions and their services and entertainment applications, Sophia is a framework for cutting-edge robotics and AI research. Hanson Robotics, the Hong-Kong based company, created Sophia to look like the famous Hollywood actress Audrey Hepburn, in order to fit her as an old age companion in nursing homes or a crowd manager in events. She has neural networks and AI embedded in her to recognize human faces and under-

stand their gestures and emotions. Sophia has become the audience's favorite by her appearance in high-profile interviews events and other discussions around the world.

### 3.3. Atlas

Developed by Boston Dynamics in 2013 (see: <https://bostondynamics.com/atlas/>) Atlas is a robot with a prime focus on locomotion, first walking in the lab, then walking on every type of unstable terrain, and eventually performing some sick Parkour tricks. The company launched Atlas with funding from the United States Defense Advanced Research Projects Agency (DARPA). In addition to identifying obstacles in the path, avoiding them, bouncing and doing some-saults, Atlas can perform additional body movements similar to those of gymnasts. Atlas uses depth sensors for real-time perception and model predictive control technology to improve motion. Atlas sees two sensors which are a color camera and a Lidar module producing a colored point cloud.

### 3.4. Ameca

The world's most advanced, most realistic humanoid robot is Ameca, and it was created by Engineered Arts in 2021 (see: <https://www.engineeredarts.co.uk/>). Ameca's first video was released publicly on Dec 1, 2021, and it received a lot of attention on Twitter and TikTok. It is primarily intended to serve as a platform for the advancement of robotics technologies involving human-robot interaction. AMECA employs embedded microphones, binocular eye-mounted cameras, a chest camera and facial recognition software to interact with the public. GPT-3 or human telepresence can also control interactions. Its artificial limbs, ligaments and sensor arrays are all made with cutting-edge technology.

### 3.5. Nadine

Nadine, is an empathetic robot developed and designed by the Institute for Media Innovation of Nanyang Technological University and manufactured by the Kokoro Company in Japan in 2013. Nadine responds to greetings, makes eye contact, and remembers all comments and conversations with her, as well as having human-like personality, moods and emotions. She was created by simulating human behavior with cutting-edge technology; Nadine has 3D depth cameras, a microphone and a webcam to collect visual and audio inputs, and then, various perception layers process these inputs to recognize various faces, gestures, emotions and behaviors in order to analyze them and respond appropriately. She has built-in chatbots to handle various queries, and also a memory model to remember different users and conversations with them. In addition, Nadine is fluent in six languages: English, Hindi, French, Japanese, Chinese and German.

## 4. Conclusion

In this article, considering the latest advances in artificial intelligence and bio-



mechanics, the hypothetical future of physicalism is explored. It is claimed that a rational and sensible extrapolation of present and expected future advances in these two areas will have huge consequences in the physicalist view by eliminating many unworkable discussions. In particular, it is maintained that consciousness cannot be defined in a concise manner, as a metaphysical definition, but only understood through the observable actions and behavior of humans and sufficiently advanced robots. This last conclusion was established by applying what we call Plato's trap, according to which, it is not possible to provide general definitions for terms like justice or beauty; instead, we can only state that someone (or something) has behaved justly, or that someone (or something) is beautiful, or, extending this argument; that someone (or something) has displayed a conscious behavior, and therefore is a conscious being. The main conclusion is a defense of physicalism. Our arguments imply that human beings are robots and that soon, they will be indistinguishable from suitable advanced man-made robots. Perhaps the most important conclusion is that this will render many philosophical questions and objections to physicalism irrelevant, and in fact, quite similar, in sense and prominence, to some philosophical medieval questions about God, the soul and immortality.

### Acknowledgements

The author acknowledges the professional English proofreading service provided by Mario Ruiz Berganza, B.Sc.

### Conflicts of Interest

The author declares no conflicts of interest regarding the publication of this paper.

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