

No Consciousness Without Need: Heidegger and the Question of Machine Subjectivity

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Abstract:

Can machines, such as computers, ever be capable of consciousness? If so, how should we decide whether a specific computer is conscious? In the past, such questions were the stuff of science fiction and philosophical speculation. But rapid advances in generative artificial intelligence, coupled with the human tendency to ascribe consciousness to entities with human-like attributes, mean that we may soon be forced to decide whether various machines are capable of possessing consciousness—including, potentially, the subjective experience of suffering. How we answer such questions will have profound implications for law and policy.

This essay argues that most discussions of the question of machine consciousness have been overly focused on cognitive abilities. Drawing from the phenomenological thought of Martin Heidegger, the essay proposes that “thinking” is a necessary but not a sufficient condition for consciousness. Subjectivity itself requires something more. Specifically, it requires something like “need.” Without this, an entity cannot be “open” to the world.

How can we determine whether an entity has need? Our paradigmatic examples of entities with needs are living things, while our paradigmatic examples of entities without needs are non-living things. Thus, if we are attempting to determine whether an entity is capable of having needs, one approach might be to look for the same kinds of evidence that we would use to determine whether an entity is alive.

Because computers, as currently constituted, display none of the relevant attributes associated with need or with life, a Heideggerian perspective suggests that computers, as currently constituted, cannot be conscious. As a result, such computers, no matter how impressive their feats of cognition become, would be categorically undeserving of our moral concern. They would deserve the same moral concern we give to a rock, or a stream of electrons. Only a computer that was somehow living, or otherwise capable of need, would be a candidate for consciousness and thus for our moral concern.

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I. Introduction: Heidegger Among the Machines

In the 1960s, the philosopher Hubert Dreyfus began a decades-long series of attacks on the capabilities of computer-based intelligence. In works such as *What Computers Can't Do* (1972), *What Computers Still Can't Do* (1992), and “Why Heideggerian AI Failed and How Fixing It Would Require Making It More Heideggerian” (2007), Dreyfus skeptically critiqued optimistic predictions of the rapid arrival of computers possessing general, human-like reasoning skills.¹ Dreyfus observed that symbolic AI researchers often adopted assumptions from rationalist, Cartesian philosophy that, he believed, had been decisively discredited by existentialist and phenomenological philosophers such as Martin Heidegger and Maurice Merleau-Ponty.²

Among other things, Dreyfus emphasized the intellectual importance of human beings having bodies and encountering “a world organized in terms of their needs, interests, and bodily capacities.”³ He also argued that various fundamental aspects of human thinking, such as common sense and an appreciation of relevance, could likely never be reduced to a series of abstract, programmable rules.⁴ To the extent that computerized thought depended on such rules, the dream of artificial general intelligence, his work suggested, would be doomed to failure.⁵

In 2017, Dreyfus passed away.⁶ In the same year, a group of scientists working at Google published a research paper entitled “Attention Is All You Need.”⁷ The paper introduced “transformer architecture,”⁸ one of a series of breakthroughs that made possible a new generation of artificial intelligence technologies based on the training of artificial neural networks using vast datasets.⁹ The new AI technologies have attracted extraordinary global attention since the release of ChatGPT in November 2022.¹⁰ They are able to do many of the things that Dreyfus suggested

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¹ See generally HUBERT L. DREYFUS, *WHAT COMPUTERS CAN'T DO: THE LIMITS OF ARTIFICIAL INTELLIGENCE* (1972); HUBERT L. DREYFUS, *WHAT COMPUTERS STILL CAN'T DO: A CRITIQUE OF ARTIFICIAL REASON* (1992); HUBERT L. DREYFUS, *Why Heideggerian AI Failed and How Fixing It Would Require Making It More Heideggerian*, in *SKILLFUL COPING: ESSAYS ON THE PHENOMENOLOGY OF THE EVERYDAY* 249 (2014).

² See, e.g., DREYFUS, *Why Heideggerian AI Failed*, *supra* note 1, at 249. For an introduction to phenomenology, see David Woodruff Smith, *Phenomenology*, *STAN. ENCYC. PHILO.* (2013).

³ See DREYFUS, *Why Heideggerian AI Failed*, *supra* note 1, at 252-53, 254; accord Hubert L. Dreyfus, *Why Computers Must Have Bodies in Order to Be Intelligent*, 21 *REV. METAPHYSICS* 13 (1967).

⁴ See HUBERT L. DREYFUS, *ON THE INTERNET* 17-20 (2d ed. 2009); cf. DREYFUS, *Why Heideggerian AI Failed*, *supra* note 1, at 249-51.

⁵ See, e.g., DREYFUS, *supra* note 1, at 273 (“The idea of super-computers containing detailed models of human bodies and brains may seem to make sense in the wild imaginations of a Ray Kurzweil or Bill Joy, but they haven’t a chance of being realized in the real world.”).

⁶ William Grimes, *Hubert L. Dreyfus, Philosopher of the Limits of Computers, Dies at 87*, *N.Y. TIMES* (May 2, 2017).

⁷ Ashish Vaswani et al., *Attention Is All You Need*, 31ST CONF. ON NEURAL INFO. PROCESSING SYSTEMS (2017), <https://arxiv.org/abs/1706.03762>.

⁸ See Vaswani et al., *supra* note 7, at 1.

⁹ For an accessible history, see Stephen Marche, *Was Linguistic A.I. Created by Accident?*, *NEW YORKER* (Aug. 23, 2024).

¹⁰ See, e.g., Kevin Roose, *How ChatGPT Kicked Off an A.I. Arms Race*, *N.Y. TIMES* (Feb. 3, 2023).

computers could not do. Large language models, for example, are able to use extraordinarily complex statistical predictions to produce texts that display an appreciation of relevance.¹¹

AI has become so impressive at imitating human intelligence, in fact, that some observers have begun to speculate about the arrival of conscious machines, a topic that was previously largely relegated to science fiction and the speculations of philosophers.¹² News reports have emerged of various individuals treating AI models as already sentient, from a Google engineer who thought the company should obtain a chatbot’s consent before experimenting on it,¹³ to a teenage boy who committed suicide after being encouraged to do so by a chatbot.¹⁴ Given the long-established propensity of human beings to ascribe a human-like consciousness not only to entities that behave in human-like ways, such as pets, but even to invisible spirits and inanimate objects, it is likely that ascriptions of consciousness to AI-driven machines will only become more frequent as machines become ever more skilled at imitating human thought and behavior.¹⁵

How we think about machine consciousness could soon become significant in a variety of moral, legal, political, and economic domains. If we ascribe consciousness to machines that are not conscious, for example, material resources and care that could be dedicated to alleviating actual suffering might instead be dedicated to preventing the imagined suffering of machine entities that are, in fact, incapable of suffering. We can also imagine the law punishing human beings for “cruelty” to AI, or allowing an AI-equipped robot to harm a human being in an act of “justified” self-defense—with the result being, in both cases, actual harm to a human being in response to an illusory harm to an unconscious entity. Given the right combination of dazzling technologies, some people might even be persuaded that their minds can be “uploaded” to a computer, when in fact the attempt to do so might only result in the extinguishing of a person’s consciousness and its replacement by something that is entirely unconscious—as unconscious as a rock.¹⁶

Jeremy Bentham argued that when evaluating the treatment of animals, “the question is not, Can they *reason*? nor, Can they *talk*? but, Can they *suffer*?”¹⁷ In the case of animals, he suggested, we have been too willing to ignore their suffering simply because they could not reason or talk with us.¹⁸ Artificial intelligence technologies may create the opposite problem. We might inaccurately assume they can suffer simply because they can reason and talk.

¹¹ See, e.g., D. Graham Burnett, *Will the Humanities Survive Artificial Intelligence?*, NEW YORKER (Apr. 26, 2025).

¹² See, e.g., Robert Long et al., *Taking AI Welfare Seriously*, ARXIV (Nov. 4, 2024), <https://arxiv.org/abs/2411.00986> (“In this report, we argue that there is a realistic possibility that some AI systems will be conscious . . . in the near future.”); Thomas Metzinger, *Artificial Suffering: An Argument for a Global Moratorium on Synthetic Phenomenology*, 8 J. ARTIFICIAL INTELLIGENCE & CONSCIOUSNESS 1 (2021). For an accessible history of speculations about conscious machines, see generally MEGHAN O’GIEBLYN, GOD, HUMAN, ANIMAL, MACHINE: TECHNOLOGY, METAPHOR, AND THE SEARCH FOR MEANING (2021).

¹³ See Nico Grant & Cade Metz, *Google Sidelines Engineer Who Claims Its A.I. Is Sentient*, N.Y. TIMES (June 12, 2022).

¹⁴ Kevin Roose, *Can A.I. Be Blamed for a Teen’s Suicide?*, N.Y. TIMES (Oct. 23, 2024).

¹⁵ For numerous examples of the misplaced attribution of consciousness or personhood to machines, see O’GIEBLYN, *supra* note 12.

¹⁶ For the futurist Ray Kurzweil’s influential speculations about mind uploading, see RAY KURZWEIL, THE AGE OF SPIRITUAL MACHINES: WHEN COMPUTERS EXCEED HUMAN INTELLIGENCE 101-31 (1999). Mind uploading has become a recurring theme in popular narratives, where it is sometimes presented as an attempt to escape death. See, e.g., BLACK MIRROR: *San Junipero* (Netflix 2016); UPLOAD (Amazon Prime Video 2020); MOUNTAINHEAD (HBO 2025).

¹⁷ JEREMY BENTHAM, AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION 283 (Clarendon Press 1996) (1789).

¹⁸ See *id.*

Of course, consciousness, and the ability to suffer, is neither a necessary nor a sufficient condition of legal personhood. We grant personhood to corporations but not to whales, even though whales, unlike corporations, certainly seem able to suffer and express suffering.¹⁹ But because of the uncanny and continually growing ability of AI to imitate human expression, if we conclude that an AI entity is conscious, we are more likely to extend legal rights to it than we have been willing to extend such rights to non-human animals.

Conversely, if we deny consciousness to machines that are, in fact, conscious, the results could be a moral catastrophe, echoing some of the most obscene episodes in human history.²⁰ Similar assumptions in the past—assumptions about members of certain human groups, babies, or animals being without souls, or unable to reason, or unable to feel pain—have contributed to incalculable suffering.²¹ Recognizing the moral risks that might result from the creation of a conscious machine, the AI company Anthropic has already hired an “A.I. welfare researcher.”²² If consciousness can emerge from a silicon-based, digital, electronic substrate no less than from a carbon-based, analog, electrochemical one, then drawing an absolute moral line between microchips and brains could be as arbitrary and harmful as drawing a similar line based on nationality, religion, or the pigmentation of a person’s skin. The moral risk is compounded by the fact that machine suffering could take forms that might somehow exceed what is physically possible for any animal.

Yet how could we possibly know whether a machine is conscious or not?

Before addressing the question, it will be useful to say a few words about the term “consciousness,” which has been used to refer to various, sometimes quite different things.²³ To

¹⁹ See generally JAMES BOYLE, *THE LINE: AI AND THE FUTURE OF PERSONHOOD* (2024); Abeba Birhane, Jelle van Dijk & Frank Pasquale, *Debunking Robot Rights Metaphysically, Ethically, and Legally*, ARXIV (Apr. 15, 2024), <https://arxiv.org/abs/2404.10072>; Adeel Hassan, *Orca That Carried Dead Calf for Weeks Appears to Be in Mourning Again*, N.Y. TIMES (Jan. 2, 2025).

²⁰ The exploitation of intelligent artificial creatures, and the analogy between such abuse and the abuse of slaves, is already the central theme of the prescient play that gave us the term “robot” (from the Czech “*robota*,” forced labor)—although the exploited creatures in the play are synthesized from organic matter, unlike “robots” as we generally think of them today. See KAREL ČAPEK, *R.U.R.* (1920). For a brief summary of how the denial of equal humanity has often contributed to atrocities, including in war, and how the recognition of equal humanity has expanded in various contexts over the course of modernity, and especially since the end of World War II, see GREGORY BRAZEAL, *THE HERO AND THE VICTIM: NARRATIVES OF CRIMINALITY IN IRAQ WAR FICTION* 46-56, 223-24 n.16 (2024).

²¹ See, e.g., *Dred Scott v. Sandford*, 60 U.S. 393, 405-07 (1857) (describing persons of African descent as “so far inferior that they had no rights which the white man was bound to respect”); Kanwaljeet S. Anand & Philip R. Hickey, *Pain and Its Effects in the Human Neonate and Fetus*, 317 NEW ENG. J. MED. 1321, 1322 (1987) (noting that surgery was performed without anesthesia on newborns based on the assumption that they did not feel pain); Colin Allen & Michael Trestman, *Animal Consciousness*, STAN. ENCYC. PHILO. (Oct. 24, 2016) (noting that Descartes conceived of animals as “reflex-driven machines, with no intellectual capacities,” and believed “that the mechanical understanding of animals absolved people of any guilt for killing and eating animals”).

²² See Kevin Roose, *If A.I. Systems Become Conscious, Should They Have Rights?*, N.Y. TIMES (Apr. 24, 2025) (noting that Google also “posted a job listing for a ‘post-A.G.I.’ research scientist whose areas of focus will include ‘machine consciousness’”).

²³ See generally Robert Van Gulick, *Consciousness*, STAN. ENCYC. PHILO. (Jan. 14, 2014). “Machine sentience” might seem to be a more precise term for the concern of this essay, because “‘sentience’ is often used for particular kinds of experience—for pleasure and pain and related experiences that include a valuation, good or bad.” PETER GODFREY-SMITH, *METAZOA: ANIMAL LIFE AND THE BIRTH OF THE MIND* 18 (2020). But precisely because “sentience” is a more technical and less commonly used term than “consciousness,” intuitions regarding how to use the term correctly are likely less developed (less logically perfected) and less broadly shared than intuitions regarding the use of “consciousness.” On the logical imperfection of natural languages and its role in philosophical

be clear, this essay is concerned with what is sometimes called “phenomenal” consciousness, the ability to have first-person, subjective feelings or experiences, such that it might be appropriate to talk about “what it is like to be” an entity.²⁴ In particular, this essay is concerned about forms of phenomenal consciousness that could give rise to moral concerns about the experiences of machines. I have focused on suffering, but other machine experiences could of course also be relevant to moral concern, such as the experience of happiness, hope, or love.²⁵

It is the phenomenal, first-person sense of consciousness that is relevant to the question of whether a machine might ever suffer or have any more of a moral claim on us than a rock. Only an entity that is phenomenally conscious is capable of experiencing pain, or of experiencing anything else that might make the entity deserving of our moral concern for its own sake.

Popular thinkers, computer researchers, cognitive neuroscientists, and analytic philosophers have proposed a number of different answers to the question of whether a machine, or more specifically a computer, could ever be conscious in the phenomenal sense. As noted below,²⁶ the most widely discussed answers tend to adopt a rationalist perspective that identifies phenomenal consciousness with intellectual processes. These answers follow in the general tradition of Descartes, who identified consciousness with thinking when he wrote: “By the word ‘thought’ I understand all that of which we are conscious as operating in us.”²⁷ Just as Descartes assumed that a creature without reason could not have a soul, and thus saw animals as soulless machines,²⁸ leading theorists of machine consciousness have tended to assume that phenomenal consciousness consists of a certain kind of thought, or certain types of physical processes related to thought.

The ultimate aim of this essay is to suggest that existentialist and phenomenological philosophy, and particularly the philosophy of Martin Heidegger, deserves attention as a resource for an alternative way of thinking about machine consciousness—one that focuses not only on *thinking* but on *need* or *purpose*, in senses to be developed below.²⁹ Although some of Dreyfus’s Heideggerian critiques of the limited capacities of computers have been rendered obsolete by advances in deep learning by artificial neural networks, there is another aspect of Heidegger’s thought that remains relevant to thinking about AI, and in particular to thinking about the possibility of AI consciousness. For these inquiries, the most significant aspect of Heidegger’s

and legal disagreement, see Gregory Brazeal, *Between Description and Prescription: Law, Wittgenstein, and Constitutional Faith*, 120 W. VA. L. REV. 363, 371-72 n.26 (2017).

²⁴ The classic statement of this conception of consciousness is Thomas Nagel, *What Is It Like to Be a Bat?*, 83 PHIL. REV. 435 (1974).

²⁵ The AI theorist and Heidegger scholar John Haugeland invoked the language of “love” in his discussion of the limitations of AI, writing that “genuine intelligence and semantics presuppose the capacity for a kind of commitment in *how* one lives, a commitment that . . . is essentially akin to love.” John Haugeland, *Syntax, Semantics, Physics*, in *VIEWS INTO THE CHINESE ROOM: NEW ESSAYS ON SEARLE AND ARTIFICIAL INTELLIGENCE* 379, 388-89 (John Preston & Mark Bishop eds., 2002); *see also* JOHN HAUGELAND, *HAVING THOUGHT: ESSAYS IN THE METAPHYSICS OF MIND* 47 (1998) (“The trouble with artificial intelligence is that computers don’t give a damn.”). Haugeland’s emphasis on AI’s lack of care as a fundamental limitation resonates with the perspective of this essay, although he was using a different vocabulary (“intelligence,” “semantics”) in pursuit of different goals.

²⁶ *See infra* Part II.

²⁷ RENÉ DESCARTES, *PRINCIPLES OF PHILOSOPHY*, in 1 *THE PHILOSOPHICAL WORKS OF DESCARTES* 588 (Cambridge Univ. Press 1911) (1644).

²⁸ *See supra* note 21.

²⁹ *See infra* Part III.

thought is his account of what makes “the intelligibility of things, their meaningful presence”³⁰ possible.

The clearest exposition of this notoriously obscure but central aspect of Heidegger’s thought can be found not in Dreyfus’s writings on Heidegger, such as his *Being-in-the-World* (1990),³¹ but in the writings of the Heidegger scholar Thomas Sheehan, such as *Making Sense of Heidegger: A Paradigm Shift* (2015).³² In Sheehan’s words, “Heidegger’s philosophy in a nutshell” is contained in the idea that “human being is the ‘open space’ or clearing within which the meaningful presence of things can occur.”³³ Adapting this language, the question of machine consciousness or subjectivity could be restated as the question: can a machine be an “open space” or clearing within which the meaningful presence of things can occur? If so, what kinds of machines could be this kind of “open space”?

After discussing some of the dominant approaches to machine consciousness in Part II, Part III of this essay will explain what it might be like to approach the question of machine consciousness from a Heideggerian perspective.³⁴

II. The Cognitive Focus of Leading Accounts of Consciousness

The following subsections offer a brief indication of some of the leading approaches to thinking about consciousness in general and machine consciousness in particular, and why they might be criticized as inadequate. I begin with popular writings, then turn to the writings of computer scientists, cognitive neuroscientists, and analytic philosophers.

A. Popular Writings

The popular writings of futurist Ray Kurzweil provide an influential and accessible example of the rationalism that dominates current discussions of consciousness and AI. Because Kurzweil has long promoted the idea of uploading human minds to computers,³⁵ it might be

³⁰ THOMAS SHEEHAN, *MAKING SENSE OF HEIDEGGER: A PARADIGM SHIFT* 23 (2015).

³¹ HUBERT L. DREYFUS, *BEING-IN-THE-WORLD: A COMMENTARY ON HEIDEGGER’S BEING AND TIME*, DIVISION I (1990).

³² SHEEHAN, *supra* note 30. Instead of interpreting Heidegger’s central concern as the revealing of a mystical, hidden “Being” apart from human beings, Sheehan presents Heidegger as a phenomenological thinker, that is, as focused on “the *correlativity* of man and being” and committed to a “phenomenological reduction of things to their meaningfulness to man.” *Id.* at xi, 10, 13. Sheehan’s Heidegger is concerned above all with “meaningfulness and its source,” with what makes the intelligibility of things possible. *Id.* at xi. Heidegger’s answer, which he articulated using a variety of obscure formulations over the course of his career, is “‘the appropriated clearing’ (*die ereignete Lichtung*), which is the same as thrown-open/appropriated human ex-sistence (*das geworfene/ereignete Da-sein*).” *Id.* at xii (footnote omitted). This essay relies on Sheehan’s interpretation of Heidegger, ignoring the interpretive controversies over Heidegger’s basic positions that continue to characterize scholarly discussions.

³³ SHEEHAN, *supra* note 30, at xv.

³⁴ To be clear at the outset, the essay’s goal is not necessarily to be faithful to Heidegger’s thought, or to Sheehan’s interpretation of Heidegger’s thought. The goal is to suggest that certain aspects of Heidegger’s thought provide materials for thinking about machines and consciousness that could be useful if we are one day forced to make a decision about whether to extend our moral concern to certain types of “artificial intelligence.”

Also, it may be worth noting that the essay has no interest in Heidegger’s views on “technology,” or more generally his political or historical views, which were often uninformed by any serious study of history or social science and typically motivated by a reactionary stew of right-wing authoritarian ideology and magical thinking about race, languages, and the role of philosophical ideas in history. See generally RICHARD WOLIN, *HEIDEGGER IN RUINS: BETWEEN PHILOSOPHY AND IDEOLOGY* (2022). Despite Heidegger’s radical reactionary political commitments, there remain aspects of his philosophical thought that possess profound and enduring value. Even Richard Wolin, in his book-length indictment of Heidegger, emphasizes at the outset that Heidegger’s “reformulation of transcendental phenomenology” need not be “condemned and dismissed” on the basis of Heidegger’s politics. *Id.* at 22.

³⁵ See, e.g., KURZWEIL, *supra* note 16, at 101-31.

assumed that he would have a strong and clear commitment to the possibility of machine consciousness. But his remarks on the subject are in fact surprisingly ambivalent. After describing how various patterns in a person's brain might be scanned and then recreated in "a reinstantiated personal mind file,"³⁶ he asks whether "the newly installed mind" will be conscious, and answers: "He certainly will claim to be. And being a lot more capable than his old neural self, he'll be persuasive and effective in his position. We'll believe him."³⁷ This is "how the issue of computer thought will be resolved. The machines will convince us that they are conscious."³⁸

But Kurzweil is not always agnostic about the phenomenal consciousness of machines. In a "Time Line" of the future toward the end of *The Age of Spiritual Machines* (1999), he writes that "[b]y the year 2099," "[t]here is no longer any clear distinction between humans and computers," and "[m]ost conscious entities do not have a permanent physical presence."³⁹ The computer that earlier only claimed to be conscious is now in fact conscious.

How will we know whether a machine is conscious? Kurzweil's rationalistic understanding of consciousness becomes apparent in an extended discussion of the question of machine consciousness at the start of a chapter titled "Of Mind and Machines."⁴⁰ He invites the reader to imagine a computer displaying on its screen the message "I am lonely and bored; please keep me company."⁴¹ He asks: "would that convince you that your notebook is conscious and has feelings?" "Well, clearly no," he responds.⁴² Then he proposes computers with increasingly complex intellectual abilities and repeats the question: "Are we getting closer to considering the computer as a conscious, feeling entity?"⁴³ The series of hypothetical computers culminates with "a massive neural net, built from silicon but based on a reverse engineering of the human brain," and using a "learning protocol" that enables the net "to learn human language and model human knowledge. Its circuits are a million times faster than human neurons, so it has plenty of time to read all human literature and develop its own conceptions of reality. Its creators do not tell it how to respond to the world."⁴⁴

Kurzweil does not state that such a computer would be conscious. But his hypotheticals suggest a rationalistic approach to consciousness in which greater cognitive complexity and thinking abilities would eventually result in consciousness. If there is a spectrum with unconscious entities at one end and conscious entities at the other, Kurzweil seems to assume the spectrum is defined by increasing intellectual abilities—and not by, for example, need or purpose, which plays no role in his discussion. If a computer with the right capacity for thinking "develop[ed] its own conceptions of reality," and without being told by its creators "how to respond to the world" said: "I'm lonely..." Kurzweil's intuition seems to suggest that this computer would necessarily be at least on the way to consciousness.

³⁶ *Id.* at 125.

³⁷ *Id.* at 126.

³⁸ *Id.* at 63.

³⁹ *Id.* at 280. For another vision of machine consciousness in a popular futurist work, see HANS MORAVEC, *ROBOT: MERE MACHINE TO TRANSCENDENT MIND* 110-26 (1999); see also Colin McGinn, *Hello, HAL*, N.Y. TIMES (Jan. 3, 1999) ("Where Moravec is weak is in attempts at philosophical discussion of machine consciousness and the nature of mind. He writes bizarre, confused, incomprehensible things about consciousness as an abstraction, like number, and as a mere "interpretation" of brain activity.").

⁴⁰ KURZWEIL, *supra* note 16, at 52.

⁴¹ *Id.*

⁴² *Id.*

⁴³ *Id.*

⁴⁴ *Id.*

In another revealing passage, Kurzweil begins by expressing agreement with the widespread belief that “at least the more evolved animals are conscious creatures.”⁴⁵ He then continues: “Machines today are still a million times simpler than the human brain. Their complexity and subtlety today is comparable to that of insects. There is relatively little speculation on the subjective experience of insects, although again, there is no convincing way to measure this.”⁴⁶ The implication seems to be that the best available evidence for the possible consciousness of machines would be their “complexity and subtlety,” and that if the complexity and subtlety of a computer became comparable to that of an insect’s brain, it might seem arbitrary to attribute subjectivity to the insect but not the computer—what other factor or factors relevant to consciousness might distinguish them?

The fact that Kurzweil does not consider the possibility of a relationship between subjectivity, consciousness, or awareness and something like “need” suggests the rationalism of his approach, and the potential value of bringing a Heideggerian perspective into the conversation on machine consciousness.

B. Computer Scientists

Other prominent approaches to the question of whether machines could ever become phenomenally conscious display a similar rationalist neglect of the potential relevance of “need” to consciousness. In particular, computer scientists who have addressed the question of whether machines could become phenomenally conscious have generally concluded that consciousness might simply emerge from or in tandem with sufficiently complex and capable thinking.⁴⁷

The AI pioneer Marvin Minsky embraced a functionalist account of phenomenal consciousness, arguing that a machine that works and behaves sufficiently like a brain would therefore “experience consciousness” in the subjective sense.⁴⁸ He viewed human subjective experience not as “irreducible” to empirically discernible phenomena, but as “an enormous suitcase that contains perhaps 40 or 50 different mechanisms that are involved in a huge network of intricate interactions” in the human brain.⁴⁹ Minsky’s descriptions of how the mechanisms of consciousness work seem to be exclusively focused on thinking. Even emotions, he says, “are not alternatives to thinking; they are simply different types of thinking.”⁵⁰ Even “goals” are presented as something learned, an object for thinking.⁵¹ Minsky gives no indication that subjective experience might necessarily depend on an entity having something like needs.

⁴⁵ *Id.* at 56.

⁴⁶ *Id.* at 56-57.

⁴⁷ It might seem that a discussion of computer scientists’ thoughts on machine consciousness should begin with the “imitation game” proposed by computer scientist Alan Turing, which has subsequently come to be known as the “Turing test.” See A.M. Turing, *Computing Machinery and Intelligence*, 59 MIND 433 (1950); Graham Oppy & David Dowe, *The Turing Test*, STAN. ENCYC. PHILO. (2021). But Turing’s test is explicitly designed to be a test of whether machines can *think*, not whether they are phenomenally conscious. See *id.* at 433, 442, 447 (concluding that “myster[ies] about consciousness . . . need not be solved before we can answer the question with which we are concerned in this paper,” that is, “Can machines think?”). It is nevertheless typical of the cognitive focus of contemporary discussions of machine consciousness that the most widely discussed test of something *like* machine consciousness is a test of machines’ cognitive skills, rather than a test related to a machine’s capacity to need.

⁴⁸ John Brockman, *Consciousness Is a Big Suitcase: A Talk with Marvin Minsky*, EDGE (2023), https://www.edge.org/conversation/marvin_minsky-consciousness-is-a-big-suitcase (presenting Brockman’s interview with Minsky from February 26, 1998).

⁴⁹ *Id.*

⁵⁰ *Id.*

⁵¹ *Id.*

Igor Aleksander, more recently, has written that artificial, phenomenal consciousness could be achieved “if a robot were endowed with a ‘neural state machine’ (as its ‘brain’), with machine states becoming ‘mental states’ by learning to ‘depict’ impinging events (e.g., a seen butterfly or a heard musical chord) or inner bodily events (e.g., stomachache).”⁵² The emphasis is, again, exclusively on representational thought—“depiction”—with no mention of something like a need being necessary for anything to “show up” phenomenally at all.

C. Cognitive Neuroscientists

Similarly, the leading approaches to phenomenal consciousness by cognitive neuroscientists have tended to focus on structures related to complex reasoning. There are many theories of “how subjective experience arises from brain activity,”⁵³ but the two that have recently received the most attention are Global Neuronal Workspace Theory (GNWT) and Integrated Information Theory (IIT).⁵⁴

GNWT asserts that what the philosopher Ned Block called “access consciousness,” or the “global availability of information,” just “*is* what we subjectively experience as a conscious state.”⁵⁵ Thus, GNWT shares the rationalistic, cognitive focus of the theories discussed above. GNWT assumes that if *information* is distributed in a system in a certain way, then by definition the system must be phenomenally conscious. The possibility that need might play some role in subjectivity receives no attention in GNWT’s account.

IIT focuses on quantifying the “intrinsic causal power” of a system, that is, how much its “current state specifies its cause (its input) and its effect (its output).”⁵⁶ The more intrinsic causal power a system possesses, according to IIT, the more conscious it is. The cerebral cortex, due to “the heterogeneity of cortical neurons and their densely overlapping set of input and output connections,” possesses a vastly higher intrinsic causal power than the metal components of a computer—“the transistors, wires and diodes that serve as the physical substrate of any computation.”⁵⁷ It is because of this that the human brain is vastly more conscious than a digital computer, although the latter possesses a “minute” amount of consciousness—so little that it can be said to feel “nothing.”⁵⁸

IIT has been criticized as an unfalsifiable pseudoscience,⁵⁹ or as approaching “panpsychist ideation” by attributing some degree of consciousness to “large-scale electrical power grids, gene-regulation networks, some electronic circuit boards, and social networks.”⁶⁰ Indeed, IIT would apparently attribute phenomenal consciousness to a grid of logic gates.⁶¹ For the purposes of this essay, all that matters is that these examples make clear that IIT, like

⁵² Igor Aleksander, *From Turing to Conscious Machines*, 7 PHILOSOPHIES 1, 4 (2022).

⁵³ See generally Davide Sattin et al., *Theoretical Models of Consciousness: A Scoping Review*, 11 BRAIN SCI. 535 (2021).

⁵⁴ See, e.g., Cogitate Consortium et al., *Adversarial Testing of Global Neuronal Workspace and Integrated Information Theories of Consciousness*, 642 NATURE 133 (2025).

⁵⁵ George A. Mashour et al., *Conscious Processing and the Global Neuronal Workspace Hypothesis*, 105 NEURON 776, 776 (2020).

⁵⁶ Christof Koch, *Will Machines Ever Become Conscious?*, SCI. AM. (2025),

<https://www.scientificamerican.com/article/will-machines-ever-become-conscious/>. The article is dated December 1, 2019, but has clearly been updated since then because it refers to ChatGPT’s o1 model, which was released in 2024.

⁵⁷ *Id.*

⁵⁸ *Id.*

⁵⁹ See Carl Zimmer, *Two Theories of Consciousness Faced Off. The Ref Took a Beating*, N.Y. TIMES (May 5, 2025).

⁶⁰ Bjorn Marker, Kenneth Williford & David Rudrauf, *The Integrated Information Theory of Consciousness: A Case of Mistaken Identity*, 45 BEHAV. & BRAIN SCI. e41, e41 (2022).

⁶¹ See Scott Aaronson, *Giulio Tononi and Me: a Phi-nal Exchange*, SHTETL-OPTIMIZED (May 30, 2014).

GNWT, gives no role to need or purpose in making subjectivity possible. Instead, as IIT’s name suggests, it defines consciousness through measurements relating to the *information* in a system.

It is possible that theories like GNWT and IIT could prove useful by suggesting ways of measuring the degree of conscious awareness in, for example, a person who has suffered extreme brain damage. The theories could draw valuable conclusions from plausible assumptions about correlations between what we agree in calling “consciousness” and various phenomena in the brain. But as frameworks for determining whether a *machine* could ever be conscious, the theories simply reflect prevailing rationalist assumptions about what phenomenal consciousness is and what makes it possible. In order to determine whether an entity subjectively experiences, they look to evidence of thinking and not to evidence of needing.

D. Analytic Philosophers

Analytic philosophy provides a final source of examples of the rationalist views of consciousness that have tended to dominate discussions of the possibility of machine consciousness. In fact, generations of undergraduate students have been introduced to philosophy in part by debating puzzles related to phenomenal consciousness. How can objectively discernible physical processes ever give rise to subjective experience—or, in T.H. Huxley’s phrasing, “[h]ow it is that anything so remarkable as a state of consciousness comes about as a result of irritating nervous tissue”?⁶² How do I know that other human beings have subjective experiences, as I do, and that everyone else is not a zombie, lacking any inner life?⁶³ How do I know that the colors another person sees are the same as the ones I see, or that another person is truly experiencing pain?⁶⁴

The primary focus of discussions of machine consciousness within analytic philosophy has for decades been John Searle’s “Chinese Room Argument.”⁶⁵ In its original form in a 1980 article, the argument purported to refute the idea that a computer’s ability to manipulate Chinese symbols according to instructions would show that the computer “understood” Chinese.⁶⁶ Countless critics have articulated in painstaking detail the various ways that Searle’s argument is not persuasive, and I will not attempt to summarize their arguments here.⁶⁷ The debates that have flowed from Searle’s article display the typical features of argument in analytic philosophy, with participants on various sides often seeming to assert that *their* ways of using various terms in various unusual contexts are *the correct* ways, and arguing against other ways of using these terms by showing the ostensibly unappealing or unacceptable implications of doing so.⁶⁸ The

⁶² See Van Gulick, *supra* note 23 (quoting THOMAS H. HUXLEY, LESSONS IN ELEMENTARY PHYSIOLOGY 8 (1866)). Huxley’s question is often referred to today as the “hard problem” of consciousness. *Id.* (citing David Chalmers, *Facing Up to the Problem of Consciousness*, 2 J. CONSCIOUSNESS STUD. 200 (1995)).

⁶³ See generally Robert Kirk, *Zombies*, STAN. ENCYC. PHILO. (2023).

⁶⁴ See Barry Maund, *Color*, STAN. ENCYC. PHILO. (2024).

⁶⁵ See David Cole, *The Chinese Room Argument*, STAN. ENCYC. PHILO. (2024); John R. Searle, *Minds, Brains, and Programs*, 3 BEHAV. & BRAIN SCI. 417 (1980).

⁶⁶ See *id.*

⁶⁷ See, e.g., Haugeland, *supra* note 25, at 382 (“In sum, the Chinese Room argument fails, due to a part-whole fallacy, a level-of-description fallacy, a fallacy of equivocation, or some combination of the three.”). From a pragmatic or therapeutic Wittgensteinian perspective, the critique of Searle’s argument would be less that he is “wrong” and that in fact a computer’s ability to manipulate Chinese symbols according to instructions *would* show that the computer understood Chinese. The critique would instead emphasize that Searle’s argument suggests we all must use various terms, including “understanding,” in the various ways that he seems to prefer, but fails to offer persuasive reasons for doing so.

⁶⁸ Against the authoritarian spirit of analytic philosophy’s combative dogmatism, the later Wittgenstein’s therapeutic approach to philosophical problems can be seen as remarkably anti-authoritarian, even democratic. For a collection

poet T.S. Eliot, who abandoned a doctorate in philosophy, describes the typical result of such debates: “almost every philosophy seems to begin as a revolt of common sense against some other theory, and ends—as it becomes itself more developed and approaches completeness—by itself becoming equally preposterous—to everyone but its author.”⁶⁹

In the years since the appearance of his original article, Searle has shifted from presenting the Chinese Room Argument merely as a successful critique of digital computers’ ability to “understand,” “think,” or possess “intentionality,” to presenting the argument as a successful critique of digital computers’ capacity for “consciousness” as well.⁷⁰ If the Chinese Room Argument is approached as an argument against machine consciousness, it might seem that the argument has some similarities with the thoughts presented below in Part III. For example, Searle argues against computers’ capacity for consciousness in part based on differences between computers’ physical composition and the biology of human beings—an argument that might seem to resonate with the discussion of the potential relevance of “life” to consciousness below.⁷¹ Further, the concept of “intentionality,” which plays a central role in Searle’s argument, has its roots in the phenomenological tradition that shaped Heidegger’s thought.⁷²

But on closer inspection, the apparent resemblance between Searle’s ideas and those of Heideggerian phenomenology quickly fade. As Dreyfus has shown at length, Searle’s conception of “intentionality” rests on dualistic and representationalist Cartesian assumptions that Heidegger rejected.⁷³ Because of the highly technical and contested nature of Searle’s use of “intentionality,” however, saying more would require a significant detour. The crucial point for the purposes of this essay is simply that Searle’s Chinese Room Argument has nothing to say about the potential role of something like “need” in making phenomenal consciousness possible. The focus of the thought experiment is on intellectual processes.

If we turn to the leading debates within analytic philosophy regarding consciousness in general, rather than machine consciousness specifically, it is difficult to find materials that shed

of sources on the therapeutic reading of the later Wittgenstein, see Brazeal, *supra* note 23, at 371-72 n.26. Factors contributing to the interminability of analytic philosophical disputes may include: the use of logically imperfect natural language terms, without an apparent recognition of their logical imperfection; the appeal to linguistic intuitions that often differ in unremarked ways; and participants’ reasoning being motivated along divergent paths by unrecognized differences in temperament, goals, and other logically undecidable factors. On the role of psychological temperament or personality in philosophical reasoning, see, for example, WILLIAM JAMES, *PRAGMATISM: A NEW NAME FOR SOME OLD WAYS OF THINKING* 6 (Longmans, Green & Co. 1907) (“The history of philosophy is to a great extent that of a certain clash of human temperaments.”); FRIEDRICH NIETZSCHE, *BEYOND GOOD AND EVIL: PRELUDE TO A PHILOSOPHY OF THE FUTURE* § 6, at 43-44 (Judith Norman trans., Cambridge Univ. Press 2002) (1886) (“[T]here is absolutely nothing impersonal about the philosopher; and in particular his morals bear decided and decisive witness to *who he is*—which means, in what order of rank the innermost drives of his nature stand with respect to each other.”).

⁶⁹ T.S. ELIOT, *THE LETTERS OF T. S. ELIOT: VOLUME ONE, 1898-1922*, 80 (Valerie Eliot ed., 1988). For Eliot’s philosophical background, see Gregory Brazeal, *The Alleged Pragmatism of T. S. Eliot*, 30 *PHIL. & LITERATURE* 248 (2006).

⁷⁰ See Cole, *supra* note 65 (quoting Searle in 2010 stating: “I demonstrated years ago with the so-called Chinese Room Argument that the implementation of the computer program is not by itself sufficient for consciousness . . .”); *id.* (“David Chalmers notes that although Searle originally directs his argument against machine intentionality, it is clear from later writings that the real issue is consciousness, which Searle holds is a necessary condition of intentionality. It is consciousness that is lacking in digital computers.”).

⁷¹ See Cole, *supra* note 65; Searle, *supra* note 65, at 417.

⁷² See Searle, *supra* note 65, at 417; Pierre Jacob, *Intentionality*, *STAN. ENCYC. PHILO.* (2023); Mark Wrathall, *Martin Heidegger*, *STAN. ENCYC. PHILO.* (2025).

⁷³ See generally Hubert L. Dreyfus, *Heidegger’s Critique of the Husserl/Searle Account of Intentionality*, in *DREYFUS, SKILLFUL COPING*, *supra* note 1, at 76.

valuable light on the question of machine consciousness. Consider, for example, the widely discussed and radically opposed positions of Daniel Dennett and Thomas Nagel. Dennett defended an eliminativist approach to phenomenal consciousness, according to which phenomenal consciousness is an illusion that does not require any explanation beyond the description of physical processes.⁷⁴ Nagel asserted, to the contrary, that the “what-it-is-like” of subjective experience cannot be reduced to an account of physical processes.⁷⁵ According to Nagel, no description limited to objective phenomena can adequately capture the difference between an entity with subjective experiences and one without such experiences.⁷⁶

Although Dennett occasionally offered thoughts related to machine consciousness, such as his “Will AI Achieve Consciousness? Wrong Question” (2019) and his early, misleadingly titled “Why You Can’t Make a Computer that Feels Pain” (1978),⁷⁷ his central disagreement with Nagel is in fact orthogonal to the question of whether machines could ever have subjective experiences such that they would be deserving of our moral concern. Dennett and Nagel differ in how they believe we should think about entities that they both agree *can* suffer and *do* deserve moral concern: namely, human beings. If someone alleged that a computer had become as able to suffer as a human being, and another person disagreed, Dennett’s and Nagel’s philosophical disagreement would offer no illumination regarding how to resolve the dispute. All that can be inferred from their positions as stated above is that if a computer were able to suffer, Dennett would insist that its suffering could be reduced to a description of physical processes, while Nagel would assert the contrary, just as in the case of human suffering.

Instead of providing resources for thinking about whether computers could ever become phenomenally conscious, philosophers like Dennett and Nagel spent decades debating, in essence, whether *human beings* are phenomenally conscious. The problem-solving methods of analytic philosophy were unable to generate a consensus even on this question.

III. Needing, Meaningful Presence, and Consciousness

This section will draw on the phenomenological thought of Martin Heidegger to approach the question of whether machines can ever be “conscious,” and, if so, how we could determine whether a specific machine had achieved “consciousness.” Using Heidegger’s thought to approach these questions may be difficult for a variety of reasons. As a result, a few prefatory remarks may be helpful.

Above all, invoking Heidegger’s thought is difficult because most of us do not ordinarily use a Heidegger-inspired vocabulary or set of assumptions when we think about human beings and the world.⁷⁸ It should not be surprising that none of the prominent perspectives on consciousness discussed in the previous section treated something like “need” as a necessary condition for phenomenal consciousness, as this section will eventually suggest. Our “common

⁷⁴ See Van Gulick, *supra* note 23, at 8.2.

⁷⁵ See *id.* at 8.1.

⁷⁶ See *id.*

⁷⁷ See Daniel C. Dennett, *Will AI Achieve Consciousness? Wrong Question*, WIRED (Feb. 19, 2019); Daniel C. Dennett, *Why You Can’t Make a Computer that Feels Pain*, 38 SYNTHESE 415, 449 (1978) (concluding that “[i]f and when a good physiological sub-personal theory of pain is developed, a robot could in principle be constructed to instantiate it”).

⁷⁸ Philosophy at its most valuable has often produced new and useful vocabularies for thinking about enduring problems that defy resolution through empirical investigation. See generally RICHARD RORTY, *CONTINGENCY, IRONY, AND SOLIDARITY* (1989); GILLES DELEUZE & FÉLIX GUATTARI, *WHAT IS PHILOSOPHY?* (Hugh Tomlinson & Graham Burchell III trans., 1996). The question of whether machines can become phenomenally conscious may soon be a rare example of a pressing social problem that calls out for philosophical treatment, and possibly for the exploration of alternative vocabularies. The purpose of this section is to suggest one path for such exploration.

sense” generally equates consciousness, like the theories discussed above, with thinking. More generally, we tend to assume a dualistic, Cartesian picture in which each of us possesses an immaterial, subjective mind set off against a material, objective world. The mind is a kind of interior space containing thoughts,⁷⁹ many of which are representations of the reality that exists independently of our minds. The ideas in our mind are true if they correspond to the way things are “out there”—the facts of the world.

This has not always and everywhere been the default image of human beings and the world. Intellectual historians such as Charles Taylor and Alasdair MacIntyre have suggested, for example, that in medieval Europe, thinkers generally assumed a radically different view in which each human being had a meaningful place in a world that had a preordained purpose, defined by God.⁸⁰ Nature was understood as a kind of book written by God in which every human being should try to fulfill the role assigned to them.⁸¹ Understandings of human beings and the world that differ even more radically from today’s common sense may be found elsewhere, including in Indigenous cultures.⁸² The language of the Ndee people of the American Southwest, for example, contains a single word, *ni’*, that “is used to capture the concept of ‘land’ and ‘mind,’” expressing “the unity between sacred landscapes and one’s state of being or identity.”⁸³

Many people in various times and places have apparently accepted views of human beings and the world that are quite different from the Cartesian assumptions that most Westerners today accept as obviously true. This suggests that “common sense” about basic philosophical questions can change. The explorations in this section invite a willingness to question the Cartesian picture of mind and matter, and to consider whether it might be possible, and even worthwhile, to adopt instead an alternative, Heideggerian picture of “consciousness” in at least some contexts.

But the use of the term “consciousness” in the preceding sentence, and throughout the essay up to this point, illustrates another difficulty. Heidegger would have rejected terms such as “consciousness” or “subjectivity” because of their Cartesian associations. A term like “subjectivity” is incompatible with Heidegger’s enduring commitment to “a phenomenological reduction of things to their meaningfulness to man,” in Sheehan’s words.⁸⁴ As we will see, a more faithfully Heideggerian way to approach the concerns that motivate this essay would have been to ask whether a machine is capable of “ex-sistence” (*Da-sein*), “having a world,” being “the clearing” (*die Lichtung*), or having the structure of “thrown-openness” (*Geworfenheit*) or “appropriation” (*Ereignis*).⁸⁵ Similarly, the essay’s references to “need” or “purpose” might have

⁷⁹ For more detailed articulations of various aspects of the picture sketched in this paragraph, including countless variations, see, for example, Lex Newman, *Descartes’ Epistemology*, STAN. ENCYC. PHILO. (2023); David Pitt, *Mental Representation*, STAN. ENCYC. PHILO. (2020); William Lycan, *Representational Theories of Consciousness*, STAN. ENCYC. PHILO. (2023); Andrea Scarantino & Ronald de Sousa, *Emotion*, STAN. ENCYC. PHILO. (2018); Marian David, *The Correspondence Theory of Truth*, STAN. ENCYC. PHILO. (2015); Howard Robinson, *Dualism*, STAN. ENCYC. PHILO. (2020); Timothy O’Connor, *Free Will*, STAN. ENCYC. PHILO. (2022); Van Gulick, *supra* note 23.

⁸⁰ See, e.g., CHARLES TAYLOR, *HEGEL* 3-11 (1975); ALASDAIR MACINTYRE, *AFTER VIRTUE* 33-34, 147-49, 165-80, 184-85 (2d ed. 1984).

⁸¹ See TAYLOR, *supra* note 80, at 5;

⁸² See generally CHARLES TAYLOR, *A SECULAR AGE* (2007); JOSEPH HENRICH, *THE WEIRDEST PEOPLE IN THE WORLD: HOW THE WEST BECAME PSYCHOLOGICALLY PECULIAR AND PARTICULARLY PROSPEROUS* (2020).

⁸³ N. BRUCE DUTHU, *AMERICAN INDIANS AND THE LAW* 93 (2008).

⁸⁴ SHEEHAN, *supra* note 30, at 10, 13, 24.

⁸⁵ See SHEEHAN, *supra* note 30, at xvi-xviii (translating terms). As Sheehan emphasizes throughout the book, “the clearing, . . . the throw-open realm (*Entwurfsbereich*) for being,” “along with *the opening of it* by our being thrown-

been refashioned in a more Heideggerian register by speaking in terms of “concern” or “care” (*Sorge*),⁸⁶ or again in terms of how “thrown-openness” makes possible the “being-in-the-world” (*In-der-Welt-sein*) that Sheehan translates as “engagement with meaning.”⁸⁷

But “consciousness” and “subjectivity” are the terms that are currently used most often in our culture for approaching questions like whether a machine can suffer. The terms provide an accessible path into the conceptual explorations in this section, even if we ultimately arrive at the conclusion that there are valid reasons for preferring different terms.

It may also be worth noting that the ultimate concern of this essay is not to faithfully reflect Heidegger’s views. If it turned out that an idea in the essay did not accurately reflect Heidegger’s thought, but was useful for thinking about the questions that motivate the essay, the fact that the idea could not be traced back to Heidegger would not undermine the value of the idea for this essay’s goals.⁸⁸ In fact, depending on how one interprets Heidegger, various thoughts in this essay may seem entirely unrelated or even radically opposed to Heidegger’s position. It might be argued, for example, that the presentation of Heidegger’s thought below is altogether too human-centered or humanistic, and that it fails to appreciate what Heidegger really meant by “Being.”⁸⁹ The use of terms like “need” and “purpose” might also be accused of reducing thought to means-end, calculative rationality, and thus to reflect the peculiar “forgetting

open or ‘brought into our own’ (ap-propri-ated)—is the core fact . . . of all Heidegger’s philosophizing.” *Id.* at 127; *accord id.* at xi-xii (arguing that Heidegger’s “work, both early and later, was not about ‘being’ . . . but rather about . . . meaningfulness and its source,” and that “this source turns out to be what he called ‘the appropriated clearing’ (*die ereignete Lichtung*), which is the same as throw-open/appropriated human ex-sistence (*das geworfene/ereignete Da-sein*)”); *id.* at 21 (summarizing the phenomenological structure of “the always-already-operative thrown-open clearing” that “is the ‘thing itself’ of all Heidegger’s work”); *id.* at 132 (describing “ex-sistence as being-in-the-world,” in the sense of “engagement with meaning,” as “the core of all Heidegger’s work,” reinscribed in “a plethora of variously nuanced titles—from *Lichtung* to *Ereignis* to *die Wesung der Wahrheit des Seins*”).

⁸⁶ See *id.* at 115; cf. MARTIN HEIDEGGER, BEING AND TIME 235 (John Macquarrie & Edward Robinson trans., 1962) (1926) (“The formally existential totality of Dasein’s ontological structural whole must therefore be grasped in the following structure: the Being of Dasein means ahead-of-itself-Being-already-in-(the-world) as Being-alongside (entities encountered within-the-world). This Being fills in the signification of “care” [*Sorge*] . . .”). Sheehan quotes an early lecture by Heidegger: “[T]o live means to care. What we care for and about . . . is equivalent to what is meaningful.” SHEEHAN, *supra* note 30, at 118. Sheehan himself sometimes uses terms such as “need” and “purpose,” as when he glosses a passage from Heidegger as saying: “we alone have the ability to make sense of things, and we do so by connecting a possibility of ourselves (a need, interest, or purpose) with a possibility of something we encounter.” *Id.* at 125. A necessary condition of what this essay refers to as “need” is our “finitude,” “incompleteness,” or “lacking”—three terms that Sheehan uses but whose German equivalents are, again, not part of Heidegger’s central recurring vocabulary. See *id.* at 101, 130, 131.

⁸⁷ See *id.* at 132.

⁸⁸ Why, then, refer to Heidegger at all, rather than simply stating the essay’s claims on their own terms? The primary reason, apart from avoiding any appearance of impropriety through the failure to credit sources, is that the references to Heidegger indicate how various thoughts in this essay might be further developed or clarified, if it turned out greater development or clarification would be valuable. If anything about the treatment of “need” in the essay, for example, proved to be insufficiently precise for some purpose, the references to Heidegger indicate that looking to Heidegger or related writings could provide a source of materials for developing the relevant ideas.

⁸⁹ See, e.g., *Martin Heidegger*, in THE NORTON ANTHOLOGY OF THEORY AND CRITICISM 1118 (Vincent B. Leitch et al. eds., 2001) (“One of the most influential philosophers of the twentieth century, Martin Heidegger spent much of his long career preoccupied by the age-old philosophical question of the meaning of ‘Being.’”); *id.* at 1120 (stating that in a later work, “Language” (1950), Heidegger “propounds his celebrated view that language speaks man,” in the sense that “[l]anguage brings man and his world into conscious existence; it is inaugural speaking in that it grants an abode or a dwelling for the being of mortals in the larger context of . . . the ‘fourfold world’ (comprising earth, sky, divinities, and mortals)”).

of being” that Heidegger condemned in our current age of “technology.”⁹⁰ It might even seem somehow misguided, in light of Heidegger’s criticisms of “technology,” to apply his thought to the question of machine consciousness at all.

I believe the essay’s attributions to Heidegger have value, but any reader who disagrees is welcome to consider the essay’s arguments on their own terms.

Finally, it may be useful to state explicitly at the outset that the sections below do not intend to suggest that one *must* use various terms in the way that this essay does because, for example, this way of talking is necessarily logically entailed by some set of irrefutable premises or universally shared intuitions. The point is simply to suggest that someone *could* talk in the following way, and that talking in this way might be useful for thinking about the possibility of machine consciousness—especially if one has the sense that currently dominant ways of talking about machine consciousness leave out something significant when they attend only to cognitive abilities, processes, and structures.

A. No Meaningful Presence Without Need

In order to understand how consciousness might be related to need, we can begin by picturing a scenario in which a human being is engaged in some kind of practical activity.⁹¹ Picture, for example, a person who is hungry and looks for something to eat in her kitchen.⁹² You might picture the kitchen as fairly cluttered, with a number of cabinets and appliances, and surfaces covered with mail and other odds and ends. The person has spent a lot of time in this kitchen. Now she is looking for something to eat.

In the moments when she is looking for something to eat, what does she notice? What is she conscious of?

Although it is possible she notices this or that detail unrelated to things to eat—a piece of mail that needs to be opened, a photograph of a loved one on the refrigerator—it is safe to say that there are countless details that she does not notice. She likely does not notice, for the most part, details of the kitchen that are irrelevant to her search for something to eat.⁹³ Of course, she must in some sense remain aware of where various potential obstacles are in order to avoid running into them. She might find herself noticing if something that is usually in one place is now in another. But she probably remains completely oblivious to various details that might stand out to someone pursuing a different purpose in the kitchen.

Imagine, for example, that the hungry person’s eyes pass over a box of matches that has been sitting on the cluttered counter, untouched, for months. The box of matches might spring to the attention of someone trying to light a candle. But the hungry person may not even be aware that the box of matches entered her field of vision. Instead, she spots a nearby apple and grabs it.

⁹⁰ See Wrathall, *supra* note 72.

⁹¹ The following scenario is offered solely for heuristic purposes, and not as a series of empirical claims to be contested through citation to psychological research. The aim is simply to start the reader down a path suggesting how it might be plausible to think of “need” as a condition of possibility for “consciousness.” Whether anything in the scenario has actually happened is in principle irrelevant, although I assume many people will find the description familiar enough.

⁹² In *Being and Time*, Heidegger offers a more phenomenologically technical discussion of how a hammer shows up in relation to our practical needs. See HEIDEGGER, *supra* note 86, at 95-105.

⁹³ Cf. Daniel J. Simons & Christopher F. Chabris, *Gorillas in Our Midst: Sustained Inattentional Blindness for Dynamic Events*, 28 PERCEPTION 1059, 1066-69 (1999) (describing the phenomenon of “inattentional blindness,” illustrated through an experiment involving observers’ failure to notice a person in a gorilla suit passing through a video).

Because the person was hungry, the apple showed up to her, and not the box of matches. We might even say that the apple showed up to her in relation to her purpose of finding food. It showed up to her not as the collection of abstract qualities that we might use to define an apple scientifically. It showed up to her as something-to-eat. The apple was “meaningfully present” in the context of her hunger *as* something-to-eat.

If she had been looking to practice juggling, the apple might have showed up differently. It might have presented itself to her as something-to-juggle-with.

In any case, one way of making sense of the hungry person’s attention to the apple and lack of attention to the matchbox would be to say that attention is shaped by a person’s purposes, her goals. A person tends to be more aware of things that are more relevant to her purposes, and less aware of things that are less relevant to her purposes.

Many writers in the phenomenological tradition have explored the ways that human beings develop this sense of relevance in various contexts from childhood onward.⁹⁴ But for the questions that motivate this essay, the most significant part of the description so far is simply that in this picture of human awareness, a person’s awareness of things—what she notices, what she is conscious of—is shaped by her purposes or goals, which are in turn shaped by her needs, wants, or desires, such as the desire for food.

With the example of the matchbox, we already saw how a feature of a person’s environment could be so irrelevant to her purposes that the feature might not “show up” in her conscious awareness at all. We could imagine this lack of awareness extending indefinitely in time. A person might drive past a building a thousand times on her daily commute and never consciously “register” that it is there until something makes it more relevant, drawing it to her attention. A person might walk beneath a discoloration on the ceiling in her home a thousand times, but the person might never be aware of the discoloration at all—until, for example, someone else points it out, and it becomes relevant to her concerns. At that point, the previously oblivious person might not only notice the discoloration, but might notice it with a flicker of annoyance every time she walks by. She might, for example, begin to notice it as a problem in relation to her desire to keep her home well-maintained.

If these scenarios are plausible, then we might generalize from them and say that things in general—and perhaps not only things in our environment, but memories, projected plans, abstract ideas—tend to “show up” for us based on having some perceived relevance to our needs, purposes, or interests. It seems to be the case that we tend to be more aware of what is more relevant to our purposes, and less aware of what is less relevant to our purposes.

If we extend this principle, we might picture someone, in theory, being *completely* unaware of something that had *no* relation to *any* of her purposes. Or we might imagine that a person whose sense of purpose in general has been dulled, perhaps through a narcotic, might as a result be less aware of the world in general.

Taken to an extreme, could we say that an entity entirely without any purposes might, as a result, lack awareness of anything? Perhaps such an entity would, necessarily, not be phenomenally conscious at all.⁹⁵ If things “show up” as meaningfully present in relation to purposes, then in the absolute absence of purposes, nothing at all would show up.

⁹⁴ See, e.g., Hubert L. Dreyfus & Stuart E. Dreyfus, *What Is Moral Maturity?: Towards a Phenomenology of Ethical Expertise*, in DREYFUS, SKILLFUL COPING, *supra* note 1, at 183.

⁹⁵ Is it possible for a human being to be conscious and yet devoid of any needs? Or should we say that even an unconscious human being, so long as he remains alive, displays something like need—at the very least, the body displays something like a striving to remain alive?

Heidegger's phenomenology suggests that there is, in fact, a plausible way of viewing "need," in the sense of a lack arising out of our finitude, as a condition of possibility for "awareness" or "consciousness," in the phenomenological sense of the meaningful presence of things. Our finitude "throws" us "open," and in our "openness," things become meaningfully present. Without incompleteness, there would be no need; without need, things could have no meaning in relation to need; without meaning, nothing could "show up" as meaningfully present at all.⁹⁶

B. Conscious Beings—Versus Rocks—Versus God

In order to understand how an entity's complete absence of need might negate the possibility of anything being meaningfully present to that entity, it might be helpful to consider two examples of entities that altogether lack need: a rock, and a certain idea of God.

As Heidegger states in his 1929-1930 lectures, published in English as *Fundamental Concepts of Metaphysics*: "the stone is worldless, the animal is poor in world, man is world-forming."⁹⁷ It is probably uncontroversial to say that an inanimate object such as a rock does not need. There is no gap between what is and what a rock strives for, because a rock does not strive for anything. A rock engages in no goal-directed behavior. This is one reason we call something inanimate—originally, without a soul (*anima*), and today used to refer to any thing that is not living. If all meaning arises in relation to need, and a rock is utterly without need, then nothing has any meaning or presence "for" or "to" a rock.

Another example that can be useful for understanding the relationship of need or lack to meaning or meaningful presence is the conception of God as perfectly self-present. This Aristotelian idea is especially useful because it clarifies the conceptual independence of "openness" from "thinking." A rock is both closed and incapable of thought. A human being is both open and capable of thought. But God, from an Aristotelian perspective, illustrates that it is possible to think and yet to be "closed," to be without a "world" in the Heideggerian sense.

In a discussion of "the self-coincident and thus self-intuiting God" of [Aristotle's] *Metaphysics* XII 7-9," Sheehan notes that God does not engage in the "synthesizing and distinguishing," the mediated knowing of things through their meanings, that characterizes human knowledge.⁹⁸ "God does not do such synthesizing and distinguishing, because God cannot. As perfectly self-coincident, with no unrealized potential (μὴ ὕλην ἔχει), Aristotle's God is the apex of immediacy, perfectly closed in upon itself in a divine narcissism of pure self-presence."⁹⁹ This Aristotelian God is the "theological limit-situation" at the opposite extreme from an inanimate object such as a rock. Both are "closed" and "worldless" in the sense of being unable to participate in the bivalent movement or mediation that makes meaning possible. God, because of his perfection, contains no "absence" or "opening" across which meaning-making

⁹⁶ My description of the relationship between "need" and "meaning" is an attempt to get at what Sheehan describes, in more precise language, as the bivalent structure of human existence. On the one hand, "[e]x-sistence is always ahead as possibility among possibilities and thus is already in touch with a range of needs and purposes. In turn, those needs and purposes are meaning-giving insofar as they are the possible meanings of whatever things might satisfy those needs and fulfill those purposes." SHEEHAN, *supra* note 30, at 149. On the other hand, "ex-sistence" is also "a return from the possible to the actual in order [to] understand (render meaningfully present) the things we meet, and to do so in terms of one or another of those possibilities." *Id.*

⁹⁷ MARTIN HEIDEGGER, *THE FUNDAMENTAL CONCEPTS OF METAPHYSICS: WORLD, FINITUDE, SOLITUDE* 176 (1995) (italics removed).

⁹⁸ SHEEHAN, *supra* note 30, at 100.

⁹⁹ *Id.* at 100-01; accord SHEEHAN, *supra* note 30, at 53 (describing God, from an Aristotelian perspective, as "perfectly perfect insofar as it is a thinking that thinks of nothing except the highest and best object of thought—namely, itself: God as the thinking that thinks itself as thinking itself: νόησις νοήσεως νόησις").

could take place. Because God is pure self-presence, he provides no open space for meaningful presence. “God does not *make sense of* things but simply *makes* them.”¹⁰⁰

C. Evidence of Needing, Evidence of Life

If we are attempting to determine whether a machine is phenomenally conscious, and if it is correct that phenomenal consciousness depends on the capacity of a machine to experience need, then it would be useful to have some set of observable criteria for identifying “need.” This is not the type of project that phenomenological philosophers have generally pursued. As philosophers, they have not in general focused on questions that could only be answered through empirical research. Some Heideggerian philosophers might even disdain attention to merely “ontic” or “existentiel” contingent empirical phenomena, or might dismiss the attempt to correlate phenomenological need with observable criteria as an expression of a misguided, scientistic positivism, in thrall to the “forgetting of being” that dominates thought in our age.

But just as cognitive neuroscientists have plausibly correlated “thinking” with various activities in the brain, so empirical scientists, if they chose to do so, might plausibly correlate “needing,” “caring,” or pursuing a “purpose” or “goal” with various objectively discernible physical processes. Of course, there is no way to peer inside an entity with a special microscope to see whether the entity contains a “gap” or “absence,” and “need” itself is not a measurable

¹⁰⁰ SHEEHAN, *supra* note 30, at 126. Sheehan uses a variety of evocative descriptions to suggest that a kind of absence, opening, or gap is a condition of possibility for meaningful presence. Metaphorically, we can imagine a kind of gap between a thing and what we practically take it “as,” or between a subject and a predicate in a sentence. If we think of “taking-as” or predication as meaning-making, then it makes sense to say that without the gap, there could be no meaning. It is thus a kind of absence—reflecting the finitude, imperfection, incompleteness, or lack of God-like perfect self-presence of living things—that dispenses meaningful presence. *Cf. id.* at 21, 100, 126. The difficulty of speaking of such an “absence” may provide some justification for Heidegger’s ever-shifting vocabularies throughout his career. At the same time, the notion of something like an absence making something like meaningful presence possible is apparently accessible enough that it has echoes even outside of philosophy. *See, e.g.,* LEONARD COHEN, *Anthem, on The Future* (Columbia Records 1992) (“There is a crack in everything / That’s how the light gets in.”); *cf.* RALPH WALDO EMERSON, *Compensation*, in *ESSAYS: FIRST SERIES* 88 (1841) (“There is a crack in every thing God has made.”).

The typical structure of a narrative might provide another, relatively familiar analogy for the gap-based structure at the center of Heidegger’s phenomenology. *Cf.* Charles Guignon, *Philosophy and Authenticity: Heidegger’s Search for a Ground for Philosophizing*, in HEIDEGGER, AUTHENTICITY, AND MODERNITY: ESSAYS IN HONOR OF HUBERT L. DREYFUS, VOLUME 1 79, 85 (Mark A. Wrathall & Jeff Malpas eds., 2000) (“To be in a situation . . . is to be part of an unfolding story with a distinctive temporal structure . . .”). From Aristotle to Kenneth Burke to Jerome Bruner, theorists of narrative have often described traditional narratives as having a teleological structure that begins with something like a problem, an “expectation gone awry,” and leads toward something like a resolution. *See, e.g.,* JEROME BRUNER, *MAKING STORIES: LAW, LITERATURE, LIFE* 4-5, 16-17, 28 (2002). Aristotle speaks of the problem as a “peripeteia, a sudden reversal in circumstances,” while Burke refers to it as “Trouble with a capital T.” *Id.* at 5, 28. When we say that a reader or viewer is “held in suspense,” we could equally say, to use a Heideggerian figure, that the reader is “thrown” by the story-initiating problem into an anticipation of some resolution. When we interpret or make sense of events in a narrative, when we arrive at a sense of their “relevance” or “meaning,” we typically do so in relation to the problems that drive the narrative forward—just as, more generally, our needs and purposes shape what we “take things as.” The “breach in the expected state of things” that gives rise to the story, *id.* at 17, might be seen as structurally analogous to the “gap” in self-presence that makes meaning possible in general. Just as an entity without a gap in self-presence would be incapable of meaning-making, so a story without some initiating breach might for that reason seem meaningless.

If nothing else, narrative interpretation is another, especially familiar instance of “making sense of things,” like the “hermeneutical ‘as’ of practical activity” and “the apophantic ‘as’ of declarative sentences.” SHEEHAN, *supra* note 30, at 104. Narrative interpretation is another illustration of how “we are pan-hermeneutical,” in the sense that “[o]ur lived environment is . . . an open-ended as-structured world of possible meanings that we can talk about, argue over, and vote on.” *Id.*

substance of some kind. These terms are phenomenological, not empirical. They derive from the critical and creative first-person introspection and philosophical reasoning that produces phenomenological thought, not empirical scientific observation. But our ordinary linguistic intuitions already suggest various possible ways of cashing out phenomenological “need” into empirically observable criteria.

For example, we already tend to associate need or purpose with goal-directed behaviors. We are more likely to ascribe needs or purposes to an entity apparently engaged in goal-directed behaviors than we are to an entity that moves randomly or not at all. We also generally tend to think of goal-directed behaviors as a potential sign of life. Moreover, as a rough first approximation, we might assume that any entity that is “alive” is driven by something that might be called “need,” in line with the Heideggerian comments regarding plants and animals above. Even the simplest single-celled organism can perhaps be said to be “driven by a need,” however minute, to maintain and in some contexts replicate itself, and thus to be “goal-directed” in a way that a rock is not.

Bringing together these thoughts, it is possible to imagine empirical researchers finding correlations between what we intuitively call “need” and various objectively measurable physical processes, such as processes in the brain and elsewhere in the body. It is also possible that we might conclude “need” in the sense relevant to the determination of whether an entity is phenomenally conscious is effectively identical with “life,” a concept whose definition has already been debated and operationalized in various ways and for various purposes.¹⁰¹

In fact, Heidegger himself draws a connection between life and “having a world,” a concept that plays a somewhat analogous role in his thought to the role played by “consciousness” in Cartesian thought. As noted above, Heidegger states: “the stone is worldless, the animal is poor in world, man is world-forming.”¹⁰² Elsewhere, he repeatedly classes plants alongside animals rather than rocks,¹⁰³ suggesting that plants are more accurately described as world-poor than as worldless. Thus, Heidegger seems to treat the line between entities that have a world, although perhaps a very minimal one, and those that have no world at all, as roughly coterminous with the line between living and non-living entities.

Sheehan explains the connection between life and world-having by suggesting that Heidegger viewed anything alive as “necessarily bound up with possibilities of itself.”¹⁰⁴ To be a living thing, whether a plant, animal, or human being, is to be defined by a kind of bivalent movement, “a matter of being relatively self-absent—stretched beyond itself (*Weg-von-sich*)—while remaining relatively self-present (*bei-sich-selbst einbehalten*).”¹⁰⁵ Any living thing is, as such, at least to some limited degree, “open to and disclosive both of itself and of something other, which in the animal’s case is the sensible object (*αἰσθητόν*) of the corresponding sense-faculty (*αἰσθησις*).”¹⁰⁶ A rock, by contrast, possesses none of the bivalent movement that opens a living thing up to something other and discloses it. Not only does a rock lack sense-faculties. It is absolutely, categorically “closed” and discloses nothing. It is utterly “worldless.”¹⁰⁷

¹⁰¹ See, e.g., Steven A. Benner, *Defining Life*, 10 ASTROBIOLOGY 1021 (2010) (collecting definitions).

¹⁰² HEIDEGGER, *supra* note 97, at 176.

¹⁰³ See, e.g., *id.* at 188.

¹⁰⁴ SHEEHAN, *supra* note 30, at 139.

¹⁰⁵ *Id.* at 103.

¹⁰⁶ *Id.* at 142.

¹⁰⁷ For Heidegger’s more detailed description of the worldlessness of the stone, see HEIDEGGER, *supra* note 97, at 196-97.

We can now start to see how the problem of machine “consciousness” might have been discussed if we lived in a world where Heidegger’s phenomenological way of thinking and talking were accepted as common sense, and Cartesian dualism was the obscure and exotic philosophical alternative. In a world of Heideggerian common sense, the emergence of sophisticated, human-imitating generative AI might still have raised concerns about whether artificially intelligent computers are more like rocks, or animals, or human beings—and in what ways. Concerns regarding the potential of artificially intelligent computers to suffer might also have loomed on the horizon. But instead of approaching these concerns by asking whether machines can be “conscious” or possess “subjectivity,” a world of folk Heideggerians might have asked whether machines can form worlds, like human beings; or are world-poor, like animals;¹⁰⁸ or are worldless, like rocks. In order to answer such questions, the folk Heideggerians would likely have paid relatively less attention to the cognitive skills of machines and relatively more attention to whether machines are “living” in any relevant sense.

But we should not stop there. It seems likely that most people would want to insist that “need” by itself, like “life” by itself, does not necessarily imply consciousness. Most people would not say that *all* living things are conscious, a position sometimes called “biopsychism,” by analogy to “panpsychism,” the belief that all things are conscious.¹⁰⁹ Given that we say a human being under deep sedation is “unconscious”—not conscious—even though the sedated human being’s body continues to engage in a variety of highly complex and environmentally responsive self-regulating activities, it would seem inconsistent to describe a single-celled organism engaged in much less complex and responsive activities as “conscious.”¹¹⁰

Instead, most people would probably be inclined to say that a machine can only be conscious, and thus potentially deserving of our moral concern, if it both “needs” and “thinks”—and if its thinking is somehow bound up with its need, rather than simply being an unrelated capacity. “Need” in the relevant sense might, conceivably, end up being operationalized partly or wholly in terms of physical processes associated with life.¹¹¹ “Thinking” in the relevant sense might end up being operationalized in terms of cognitive processes that neuroscientists find to be associated with other evidence of consciousness. Only if a machine displayed sufficient signs of both “needing” and “thinking” in a sufficiently unified way would we be inclined to conclude that the machine was phenomenally conscious and thus deserving of our moral concern.

¹⁰⁸ Of course, we now possess evidence, not available to Heidegger, that calls into question precisely how “world-poor” various animals are. See, e.g., Elizabeth Kolbert, *Talk to Me*, NEW YORKER (Sept. 4, 2023) (describing debates over whether whales have “language,” and attempts to translate whale communication using deep learning techniques); Shayla Love, *Do Insects Feel Pain?*, NEW YORKER (Jan. 5, 2025). Recent research concerning the possible “sentience,” “consciousness,” or “intelligence” of plants and fungi have, however, tended to vindicate Heidegger’s decision to draw the line between “worldless” and “world-poor” entities at life, rather than, for example, at the line between plants and animals. See, e.g., Elizabeth Kolbert, *Savvy in the Grass*, N.Y. REV. BOOKS, Oct. 3, 2024 (reviewing books on “plant intelligence”); Hua Hsu, *The Secret Lives of Fungi*, NEW YORKER (May 11, 2020) (describing fungi as “sensors, processing and transmitting information through their networks”).

¹⁰⁹ On panpsychism, see Philip Goff, William Seager & Sean Allen-Hermanson, *Panpsychism*, STAN. ENCYC. PHILO. (2022).

¹¹⁰ But see W.G. SEBALD, AUSTERLITZ 94 (2001) (“[A]nd who knows, said Austerlitz, perhaps moths dream as well, perhaps a lettuce in the garden dreams as it looks up at the moon by night.”).

¹¹¹ It is easy to imagine the emergence of competing theories of “life” in the context of debates over machine subjectivity. For a recent attempt to define life in terms of a mathematical formula, echoing the formula for consciousness at the center of IIT, see Carl Zimmer, *A Test for Life Versus Non-Life*, N.Y. TIMES (July 31, 2024) (describing “assembly theory”).

IV. Conclusion: Needing Machines?

Bringing “need” into our understanding of phenomenal consciousness would only be the first step in a conversation that might involve any number of new debates and new directions for empirical research, as suggested in the previous section. But it would still be a significant and, I think, valuable step to take as we begin to confront the looming question of machine consciousness.

It is a testament to the dominance of Cartesian assumptions in our current common sense that the potential relevance of “need” has been neglected up to now in the most prominent debates over consciousness in general and machine consciousness in particular. From a Cartesian perspective, consciousness may seem to be simply a matter of thought, not of needing or of life. Why, the Cartesian rationalist might wonder, would a computer need to be anything like a living thing in order to be conscious? If the computer can think in the right way, surely its thinking would qualify as conscious.

But Heideggerian phenomenology suggests a plausible basis for saying that no amount of cognitive ability could ever make a computer “open” to the world, and thus phenomenally conscious, so long as the computer lacked the kind of “need” that would make “openness” possible.

Could a computer ever be capable of “needing” in the relevant, meaningful-presence-disclosing sense? Could there be such a thing as a needing machine?¹¹²

How we answer this question will probably depend in part on how we operationalize the term “need” based on research into living things. But it will also, I suspect, depend even more on future developments in the architecture of computers, including the potentially horrifying but possibly inevitable development of technologies at the intersection of computing and artificial life.¹¹³

¹¹² Wittgenstein wrote: “If a lion could speak, we could not understand him.” LUDWIG WITTGENSTEIN, *PHILOSOPHICAL INVESTIGATIONS* § 327 (G.E.M. Anscombe, P.M.S. Hacker & Joachim Schulte eds. & trans., rev. 4th ed. 2009). It might be argued, to the contrary, that our form of life likely shares enough with that of lions that we could understand some of what a lion “said,” such as an expression of pain or hunger. The “needs” of a possibly “needing” computer, however, might be so alien to us that we might not know whether to call them “needs” at all.

¹¹³ For an early exploration of one possible sense of artificial life, see John Von Neumann’s speculations in the 1940s regarding how to build “self-reproducing automata.” See THOMAS RID, *RISE OF THE MACHINES: A CYBERNETIC HISTORY* 115-18 (2016). More recently, researchers have created “xenobots” (“a simple, ‘programmable’ organism that is created by assembling stem cells in a Petri dish”) using frog cells. Scott Neuman, *Living Robots Made in a Lab Have Found a New Way to Self-Replicate, Researchers Say*, NPR (Dec. 1, 2021); see also Carl Zimmer, *Scientists Are Learning to Rewrite the Code of Life*, N.Y. TIMES (July 31, 2025) (“In a giant feat of genetic engineering, scientists have created bacteria that make proteins in a radically different way than all natural species do.”).