

**TechCast Article Series**

**Framing Consciousness**

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**Consciousness** The having of perceptions, thoughts, and feelings; awareness. The term is *impossible to define* except in terms that are unintelligible without a grasp of what consciousness means...Consciousness is a fascinating but elusive phenomenon: *it is impossible to specify what it is, what it does, or why it evolved...* (*International Dictionary of Psychology*, in Chalmers, p4)

The above definition in an eminent psychology publication highlights the challenge of defining consciousness. This may overstate the problem because we live in an age when information, knowledge, and intelligence are appearing everywhere, and science is bent on tracing consciousness to the brain. It's also an age when existential challenges like climate change confront the world, and public life is dominated by emotions, ideologies, and other intensely subjective forms of consciousness. Yet we have only the faintest inkling of what this mysterious domain really is, where it comes from, and what purpose it serves.

This study surveys the literature to outline the present state-of-knowledge on this crucial topic. I offer a graphic symbolizing the structure of consciousness and conclude with a summary of the issues that remain unexplored.

**Technology and Consciousness**

The issue of consciousness and the mind has long been dominated by technology. In 1969, the Rand Corporation conducted a Delphi survey of

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upcoming scientific and technological developments (Gordon & Ament, 1986). A review done almost twenty years later noted the following “hits”:

- Teaching machines that utilize *adaptive programs* and respond to user behavior.
- Narcotic drugs for producing specific *personality changes*.
- A primitive form of *artificial life*.

Each of these involves understanding consciousness. We are interested in consciousness because many perceive it to be the very next stage of evolutionary development, breaking from the characteristic physicalism of the “industrial era” and embracing a different concept of reality that transcends the physical world (Kurzweil, Halal) This break, or perhaps broadening, of reality to accept forces yet undescribed and unseen, is greatly anticipated and promises to harness vast powers of the mind.

The purpose of this paper is to clarify the issue of consciousness, *making it useful for discussion and planning for the future*. I present a brief definition of Mind, and a synopsis of selected theorists’ contributions to understanding consciousness, including the realm of *higher consciousness*. We finally arrive at a graphical framework for consciousness, and then identify outstanding issues.

It is admittedly impossible to present the vast and detailed studies on epistemological of the Mind here. Yet we must make the attempt in order to have meaningful discussion of the inevitable interrelationships of technology and consciousness that are growing dramatically.

## Charting Theories of Consciousness

Leaving open complex questions of **how** the brain and mind relate, let’s focus on **what** the mind does from a functionalist view. We will inventory the functions of the mind on a strictly empirical basis. It is generally agreed that the mind has several distinct functions:

- Thought (forms created in the mind)
- Perception (senses and awareness)
- Memory (storing, retaining and retrieving)
- Emotion (feelings, mood, temperament, personality, disposition, motivation)
- Imagination (mental images not perceived by the senses, fantasy)

Each has been dissected by psychology, philosophy, neurology, physiology, anthropology, and other disciplines. Each has its place in a hierarchy, and is roughly associated with the brain. Consciousness is often

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most closely related to the functions of thought and perception, as well as emotion and imagination. Some authors raise human thought and perception to a higher level, leaving memory to automatons, robots and artificial intelligence.

To understand the full range of theoretical views on this complex issue, the writings of several current philosophers and cognitive scientists are briefly noted below. Each contributes to a definition, yet each differs in their explanations of the issues plaguing consciousness.

**William James** is arguably the most influential modern philosopher and psychologist to first tackle consciousness. His work on the *stream of consciousness* is seminal. James laid the foundation for discussing mental states, the *dynamics and continuity* of consciousness, its subjectivity, and our filtering processes in culture and linguistics. To James, mind is identified with consciousness primarily through subjective introspection. He writes that a stream of *free spontaneity*, today referred to as the stream of consciousness, comes in a continuous flow without sharp breaks. He claims that no item of consciousness is ever exactly repeated. (Honderich, p455).

**John Searle** defines *consciousness* as states of sentience and awareness. Consciousness so defined switches on and off and ranges in intensity from drowsiness to full awareness. It is an inner, first person, qualitative phenomenon. It does not necessarily imply self-consciousness or self-awareness. Humans and higher animals are conscious but we do not know how far down the phylogenetic scale consciousness extends. (Searle, 1997, p5-6) Searle thinks “The most important problem in biological sciences is...*how exactly* do neurobiological processes in the brain cause consciousness?” He writes that the problem is philosophically loaded because the thought that consciousness might be apart from the brain implies dualism, which has been generally, but not entirely, rejected. He sees brains as biological machines that think. For all we know it might be possible to build artificial brains that can also think. (Searle, 1997, p13). An artificially equivalent brain might cause consciousness “though it is made of some substance totally different from neurons.” (Searle, 1997, p191).

**David Chalmers** writes that “Consciousness ... may be the largest outstanding obstacle in our quest for a scientific understanding of the universe.” Chalmers says that a mental state is a conscious state *if it has a qualitative feel* – an associated “quality of experience.” He offers a not-exhaustive catalog of conscious experiences, including visual, auditory, tactile, olfactory, taste, hot & cold, pain, other bodily sensations such as hunger, mental images, conscious thought, emotions, the sense of self, dreams, arousal, fatigue, intoxication, drug induced experiences, etc. (p6-11) Chalmers discusses the “new physics” and says “one cannot rule out the possibility that fundamental physical theories such as quantum mechanics will play a key role in a theory of consciousness” (Chalmers, p120),

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**Dan Dennett** views consciousness as a phenomenon that has a base in biology, and is influenced by *culture* and *language* acting as filters. To Dennett, “Mother Nature” plays a large role in understanding how consciousness occurs. *Intentionality* (beliefs, desires, hopes, love, hate, lust, disgust, shame, pride, irritation, amusement and so on) are thought to be a product of evolution. Consciousness is both *human* and *learned*, possibly for survival of the species. Humans receive more data “subconsciously” than “consciously,” a tendency to assume the worst case from early survival. Clark, p99 and Searle, 1984, p16)

**Ray Kurzweil** has a succinct definition – “subjective experience.” The ability of a being, animal, or entity to have self-perception and self-awareness. The ability to feel. He poses a key question of whether computers will “achieve consciousness, much as their human creators have.” (p300). He is concerned with the ability to impart artificial intelligence on robots, and having the robots *convince us* that they possess consciousness. “...Once computers are as complex as the human brain, and can match the human brain in subtlety and complexity of thought, are we to consider them conscious? (p6). He also thinks that at least the more evolved animals are conscious creatures. Kurzweil further notes that the power of consciousness in observing a quantum uncertainty to cause quantum decoherence. (p118).

**Roger Penrose**, noted mathematician and physicist, claims that we live in several worlds, physics, consciousness and mathematics. The first is clearly the realm of science, measurable, and describable. The second is introspective and creative, leading to the third world of math, which describes the physical world and offers some predictability of it. Penrose, while not offering a definition of consciousness, focuses on artificial intelligence and robotics. He claims that machines cannot do what humans do, such as having consciousness, because machines only work from an algorithm.

## Higher Consciousness

Higher consciousness has been alluded by the previous authors. Penrose’s math, Dennett’s culture and language, Chalmer’s dualism and quantum physics all hint at a human future pushing the boundaries of consciousness. Present views and cultural filters that limit consciousness and define “what it is to be human” may be eliminated, exposing us to a higher level of reality. Some claim this would be a natural evolution for humans:

**Ernest Holmes**, an early and venerated spiritual teacher, defined *consciousness* as awareness...will, decision, and discrimination. (p580) He saw consciousness through a very different lens than the previous authors, writing that the mind is spirit, the subconscious mind is prone to following natural laws, and the conscious mind is in *unity* with a *supreme spirit*.

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**William Halal** thinks consciousness is the next “great frontier in civilization’s progress,” moving beyond information, knowledge and other forms of logic. He sees individuals as *islands* of consciousness, interacting with other islands. To arrive at a definition, Halal describes a *computer model* and a *spiritual model* of consciousness, and suggests a novel synthesis of both. Halal posits that *heightened states of consciousness comprise a “human spirit”*, including choice, free will, values, beliefs, etc. This human spirit emerges naturally from basic human information processes. Unlike the previous writers, Halal ratchets the discussion beyond the known senses to consider the possibility of a metaphysical realm of spiritual *forces*. He thinks information, knowledge, and artificial intelligence are moving the world toward an Age of Consciousness sometime between 2020 to 2030. It may be called a “Crisis of Maturity”, a “Global Community”, or an “Age of Wisdom”, but it’s coming!

**Michael Jawer & Marc Micozzi** observe that emotion (or feeling) predated intelligence in human evolution. “Feeling... is the basis of consciousness and underlies *higher* thought.” (p40) Like others, they consider emotion a form of innate intelligence, or consciousness.

**Charles Tart**, a psychologist, observes the limits of materialism and heralds an era of *emergent spirit*. Like Dennett, he believes that consciousness is subject to the influences of language, events and culture. And like Chalmers, he tends towards accepting a form of dualism, giving examples of experiments in telepathy, clairvoyance, precognition, psychokinesis, and psychic healing. He thinks a spiritual reality transcends the material world in which people have souls and societies evolve in spiritual directions. (p73)

**Amit Goswami**, is interested in the integration of science and spirituality. Goswami sees *consciousness* as the ground of being (original, constitutive of all things) that manifests as the subject chooses, experiences what it chooses, as self-referentially collapses the quantum wave function. (p276-277) He disavows the possibility that artificial intelligence, robots, or anything other than a human can be conscious. “I submit that the sense we have of an inner connection with other humans is due to a real connection with the spirit...I believe that classical computers can never be conscious like us because they lack this spiritual connection.” (p23)

**John Searle** also agrees with this view of higher consciousness being distinctly subjective. “To try to create consciousness by creating a machine which behaves as if it were conscious is simply irrelevant, because behavior itself is irrelevant...” (Searle, 1997, p204)

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## A Model of Consciousness and Outstanding Questions

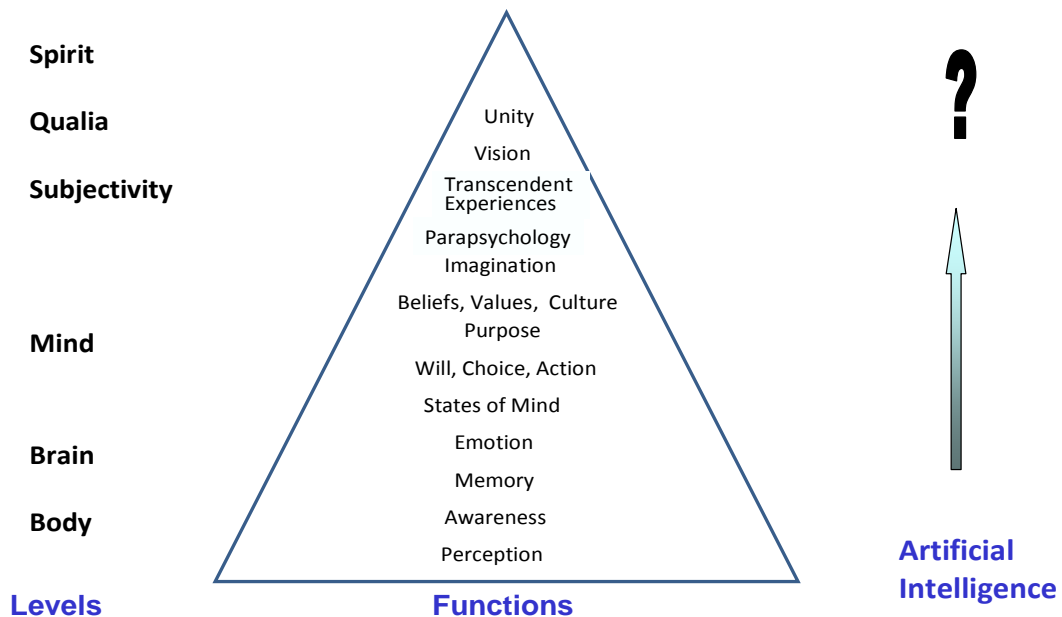
Drawing from the concepts presented here, I think we can form a comprehensive definition of consciousness:

Those dynamic states of thought and perception, sentience and awareness, including visual, auditory, tactile, olfactory, taste, hot & cold, pain, other bodily sensations such as hunger, mental images, conscious thought, emotions, and the sense of self, dreams, arousal, fatigue, intoxication, drug induced experiences, and the combination of these; that occur, awake and asleep; that can vary in intensity; that can have degrees of cultural and linguistic influence; that may become heightened and purified with discipline; that currently occur in humans and higher animals; and that may involve decision making, creativity, intuition, religiosity, spirituality, and out-of-body experience.

And this definition can be illustrated with the following graphic:

Figure 1

### Structure of Consciousness



Note that the functions above are drawn from the literature, and they are organized by their level in the hierarchy of consciousness shown at the left.

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While this is useful because it integrates present knowledge into a tentative but coherent understanding of this illusive subject, it leaves many more profound questions unaddressed:

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- **Is there a fundamental difference between *machine intelligence* and *human thought*?** The coming intersection of information technology and neuroscience is producing advanced forms of Machine intelligence, also called Artificial Intelligence, that forms the foundation for the coming era. Will machines really eclipse humans? Or will the inherent limits of AI force us to recognize the unique qualities of higher consciousness? Perhaps lesser functions will be relegated to automatons while humans become freed to focus their energy on higher-order issues? As the graphic illustrates, we do not know how much of consciousness can be modeled by AI.
- **Can we speak meaningfully about higher consciousness forming a state of *human spirit*?** Tart's work relates the spiritual and material worlds, and anticipates the end of materialism. Mind altering drugs may assist this transition, at least for the perception of a higher state of personal existence. But the issue of defining "spirituality" in accessible terms like "human spirit" is central to consciousness.
- **What is known about the effects of this human spirit on behavior, on institutions?** Human action and interaction may be significantly affected by a higher consciousness. Tart's work on mental telepathy, telekinesis and other parapsychology phenomena points in this direction, as does much common work in organizational change, medicine, and other fields. Collaborative enterprises may develop.
- **Is it possible that consciousness flows out of some *universal spirit*?** Holmes believed that the conscious mind is in *unity* with a *supreme* spirit. Similarly, Goswami's writings concerning a "real connection with the spirit" lead us to consider that singularity.
- **Is a *universal religion* possible?** If a singular spirit is the key to our connectivity, and if it exists, we may not require any other means to that end. A global moral code becomes feasible. Religion may disappear.
- **What will be the effects of higher consciousness upon culture and language?** Dennett proposes that consciousness is *human* and *learned*. Higher consciousness is a disciplined process of eliminating culture and language and other distractions. As we achieve these higher levels, we may not need these accoutrements.
- **Is this *solely* a human phenomenon, or may we speak of animal or automaton consciousness?** Penrose and Goswami address this question head-on, that computers can *never* be conscious because they require programming and because they lack a human spiritual connection. Others such as Searle disagree. Do animals of all types possess a form of consciousness?



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## Conclusion

A wealth of knowledge points to the enormous depth of this mysterious domain of consciousness now emerging into full view. I hope this framework brings some clarity to the terrain ahead, enabling philosophers, scientists, forecasters, futurists, executives, and all of us to better understand – and even manage – the invisible forces that govern our lives. To see a pioneering study in this direction, go to [Technologies of Consciousness](#). Please send your suggestions for building on this framework with changes, additions, deletions, etc. to John Sagi [jsagi@gwmail.gwu.edu](mailto:jsagi@gwmail.gwu.edu) and Bill Halal [Halal@gwu.edu](mailto:Halal@gwu.edu)

## References

- Block, N. (n.d.). *Consciousness, Philosophical Issues About*. Retrieved from <http://www.nyu.edu/gsas/dept/philo/faculty/block/papers/ecs.pdf>
- Chalmers, D. (1996). *The Conscious Mind: In Search of a Fundamental Theory*. New York, NY: Oxford University Press.
- Clark, A. (2001). *Mindware: An Introduction to the Philosophy of Cognitive Science*. New York, NY: Oxford University Press.
- Gordon, T. & Ament, J. (1986). Forecasts of Technological and Scientific Developments and Societal Consequences." In Teich, A. *Technology and the Future*. NY, NY: St Martins Press.
- Goswami, A. (1995). *The Self-Aware Universe*. New York, NY: Tarcher/Putnam.
- Halal, W. (2008). *Technology's Promise*. Basingstoke, UK: Palgrave Macmillan.
- Holmes, E. (1998). *The Science of Mind*. New York, NY: Tarcher/Putnam.
- Honderich, T. (ed.)(2005). *The Oxford Guide to Philosophy*. UK: Oxford University Press.
- James, W. (1999). The Stream of Consciousness. In Lyons, W. (ed). *Modern Philosophy of Mind*. London, UK: Orion House.
- Jawer, M. & Micozzi, M. (2009). *The Spiritual Anatomy of Emotion*. Park Street Press.
- Kurzweil, R. (1999). *The Age of Spiritual Machines*. New York, NY: Viking.
- Searle, J. (1984). *Minds, Brains and Science*. Boston, MA: Harvard University Press.
- Searle, J. (1997). *The Mystery of Consciousness*. New York, NY: NYREV.
- Tart, C. (2009). *The End of Materialism*. Oakland, CA: New Harbinger.