Brain Function and Religion

by David Cycleback PhD

Center for Artifact Studies

Overview: This peer-reviewed text offers several perspectives on the diversity of brain function, including ways pathologized as disorders, and its relationship to religious beliefs. Topics include what mystical experiences tell us about human knowledge, cognitive influences behind human beliefs in God, the relationship between mental disorders and religious visions, spiritual experiences of children and non-human animals, and the potential influence of artificial intelligence and transhumanism on religion.

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About the Author

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Introduction

"Knowing the extent of one's ignorance is true knowledge"-- Confucius

Most of reality (whatever that is, if it's more than a human concept) is beyond human understanding. It is beyond the species' particular way of thinking, beyond its limited senses and finite experience in time and space. Learned thinkers through the ages have stated this, and virtually all religions state this. The Lakota called reality "The Great Mystery." Isaac Newton said, "What we know is a drop. What we don't know is a mystery."

Humans have different systems of definition to examine the physical world. These include logic, religion, art, science, political science, psychology and economics. Each has its particular scope, purpose and insights, and its inherent limits, biases and subjectivity. Even if the methods could somehow be combined, it would still produce a limited and distorted view.

This text offers several perspectives on the diversity of brain functioning, including ways pathologized as mental disorders, and its relation to religious beliefs. Any book(s) on this topic is necessarily incomplete, and debate and additional perspectives are encouraged.

1 The Diverse Spectrum of Human Brain Functioning

> "Discovery consists in seeing what everyone else has seen and thinking what no one else has thought."-- Albert Szent‑Gyorgyi

Beyond the different theories and beliefs used by humans, human brains and biology function along a wide spectrum. Likely no two brains function exactly alike. Even within the parameters of what is considered normal, there is wide diversity.

Cultures have traditionally considered their normal way of brain functioning to be the correct way, and have dismissed, tried to cure and even persecuted those who think differently. However, all forms of thinking, including ways accepted by society, have trade-offs, good and bad qualities, positive and negative aspects. What are pathologized as mental disorders involve both functional deficits and positive, practical skills.

Many famous religious leaders, artists and academics had mental disorders that both socially/functionally hindered them but were essential to their original ways of thinking and work. What are good and bad qualities, positive and negative aspects, is subjective and situational.

Autism, or autism spectrum disorder, is a range of neurological disorders that has many functional disabilities ranging in intensity. Symptoms include difficulties in communication and understanding language, learning disabilities, lack of empathy and understanding of social cues, social withdrawal, repetitive movements, inappropriate social actions and self-abuse. (Stoppler 2018)

However, the autistic can have great skills including in mathematics, memory, focus and pattern recognition. The great physicists and mathematicians Paul Dirac and Issac Newton are considered to have been autistic, and their autistic way of thinking was integral to their academic success. University of Cambridge psychology professor and director of the Autism Research Centre Simon Baron-Cohen fears that a prenatal test for autism could deprive the world of geniuses such as Dirac and Newton. (Washington 2016) (Baron-Cohen 2009)

When the autistic's special needs are accommodated, tech businesses have discovered that the autistic can have unusual skills, such as focus, processing data and pattern recognition. (Autocon 2018)

> "Recent data and my own personal experience suggest it's time to start thinking of autism as an advantage in some spheres, not a cross to bear," -- Dr. Laurent Mottron, Professor of Psychiatry at the University of Montreal (Mottron in Wakenine 2011)

Dyslexia is a learning disorder that affects areas of the brain that process symbolic language. Symptoms include difficulty in reading, poor spelling, mispronouncing words, and difficulty in memorizing and doing math. However, dyslexia involves unusual skills. These include creativity, holistic and independent thinking, high reasoning skills and understanding complexity, and having a wide field of vision. (Nessy 201)

> "It's as if people with dyslexia tend to use a wide-angle lens to take in the world, while others tend to use a telephoto, each is best at revealing different kinds of detail."-- Matthew H. Schneps, Harvard University (Schepps in Nessy 2011)

Known for their creative and original thinking, people believed to have been dyslexic include Agatha Christie, Leonardo da Vinci, Walt Disney, Albert Einstein, Thomas Edison, Richard Branson and Picasso. Leonardo was a horrific speller and Einstein was slow to speak as a child, both common signs of dyslexia. (Clark 2020)

> "I recognized that I had dyslexia and then I realized I had this gift for imaging. I live in a world of patterns and images, and I see things that no one else sees. Because of dyslexia, I can see these patterns . . . You can't overcome it; you can work around it and make it work for you, but it never goes away. That's probably a good thing, because if dyslexia went away, then the other gifts would go away too."-- Beryl Benecarraf MD, Harvard Medical School (Benacerraf in Nessy 2011)

> "It is time we lost the stigma around dyslexia. It is not a disadvantage; it is merely a different way of thinking. Once freed from archaic schooling practices and preconceptions, my mind opened up. Out in the real world, my dyslexia became my massive advantage: it helped me to think creatively and laterally, and see solutions where others saw problems."-- business magnate Richard Branson (Branson 2019)

Schizophrenia is a complex, severe disorder that is far from fully understood. However, schizophrenia is associated with creativity and original thinking. Artists believed to have been

schizophrenic include Clara Bow, Camille Claudel, Buddy Bolden, Syd Barrett, Jack Kerouac, Brian Wilson and Veronica Lake. (Mayo Clinic 2019) (Webmd 2020) (Ranker 2020)

The Nobel Prize-winning mathematician John Nash's paranoid schizophrenia caused him great social and functioning troubles, including hallucinations, delusions and involuntary hospitalizations. However, he said that when the delusions were under control, his unique way of thinking contributed to his mathematical discoveries. (Nutt 2015)

Bipolar disorder is a mental illness that at its extremes involves psychoses, delusions and hallucinations. However, it is also genetically associated with high intelligence and creativity. A University of Lancaster study showed that bipolar participants "described a wide range of internal states that they believe are experienced at far greater intensity than those without the condition, including increased perceptual sensitivity, creativity, focus and clarity of thought." (Greenwood 2016) (Lancaster University 2012)

Great artists who are believed to have been bipolar include Van Gogh, Vivien Leigh, Beethoven, Virginia Woolf, Kurt Cobain, Anne Sexton and Edvard Munch. Munch said, "I can not get rid of my illnesses, for there is a lot in my art that exists only because of them." Others who many believe were bipolar include Winston Churchill, Teddy Roosevelt and Florence Nightingale. (Ferreira 2012) (WebMd 2019)

> "It's a very strong argument that Van Gogh had bipolar disorder. He was able to see things in such an extraordinary way and depict things in ways that were never done before. But he was also hospitalized repeatedly for either mania or depression. And there are many people who in many ways think it is a gift because they can see things differently than many other people can."--Andrew Nierenberg MD, Professor of Psychiatry at Harvard University and Director of the Dauten Family Center for Bipolar Treatment Innovation (Nierenberg in Teton Gravity Research 2018)

Composer Robert Schumann is believed to have been bipolar. He is known for his erratic work habits and extreme mood swings and spent his last years institutionalized. Marin Alsop, Director of the Baltimore Symphony Orchestra, said his mental disorder was integral to his art.

> "Typically for Schumann, when he was in a manic state he would compose feverishly, but when he fell into a depressive state, he was virtually paralyzed. It makes me wonder: What if Schumann had Prozac or lithium? Would his creativity have been helped or hampered by these modern, so-called wonder drugs? . . . . Would his autobiographical Second Symphony tell a different

> story? As it stands, I hear the music pulsing with Schumann's journey from abject depression to triumph and joy."-- Marin Alsop (Alsop 2008)

Mystical experiences are temporary neurological events where the functioning of the brain changes and sensory information is processed emotionally. During mystical experiences, people experience and perceive the world and themselves in radically different ways. Though temporary and commonplace with mentally healthy people, the instances are similar to schizophrenia.

Many famous scientists, academics, artists and thinkers have had mystical experiences that influenced their work and world views, including Frida Kaylo, Richard Feynman, Albert Einstein, Huston Smith, Walt Whitman, William Blake and Madonna.

Artists Vladimir Nabakov, Franz Liszt, Duke Ellington, Charles Baudelaire, Wassily Kandinsky and Arther Rimnad are believed to have had **synesthesia**. Synesthesia is a condition where one's sense is simultaneously perceived by another, often multiple, senses. A person with synesthesia may experience musical notes, letters or numbers also as colors, smells or flavors. (Ramachandran and Hubbard 2003) (English 2019) (Elise 2016)

> "A growing body of evidence shows synesthesia is more common among creative types and that some of the most imaginative minds — Hockney, Kandinsky, Nabokov — were indeed synesthetic. According to those who study the condition, cross-sensory experiences may offer a particular artistic advantage: a greater aesthetic sensitivity than the rest of us, and thus a greater likelihood to gravitate toward artistic fields."-- art journalist Jacoba Urist (Urist 2016)

Many people have multiple disorders and to different degrees, such as having schizophrenia and bipolar disorder or having ADHD and anxiety disorder. People have different symptoms of the disorder, and an individual's personality has a diversity of other aspects and influences. A saying about the autistic is, "If you've met one autistic person, you've met one autistic person."

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2 What Mystical Experiences Tell Us About Human Knowledge

> "We can only know the world as it appears from our perspective"-- science journalist Dan Falk (Falk 2019)

From religion to philosophy to science, all human systems of definition are formed by human brains. The nature and limits of the human brain are the nature and limits of those systems. This chapter shows how the human brain works normally then unusually, and what this reveals about the limits of human knowledge.

There are many conditions and instances where the brain processes information unusually, including mental disorders, physical events and drug use. This chapter focuses on the neurological events called mystical experiences.

The human brain is a sensory information processor

To function and survive as a species, humans have evolved to use various mental methods to process the limited sensory information they receive.

There are many different ways for brains to process information. Human brains and bodies have evolved to use a particular way suitable for their particular purposes, needs and environment. For different purposes and needs, non-human animals and artificial minds process information differently. Each way of information processing has its positives and negatives, special skills and problems. Computers and non-human animals are superior to humans at some tasks, humans at other tasks. It is not a matter of which brain is better or worse. They are just different. (University of Adelaide 2013) (Lubin 2017) (Dickson 2018)

That humans cannot know which, if any, way or combination of ways of thinking is the 'best' or 'correct' for examining the world and reality is one of the key limits to human knowledge. Visual illusions and cognitive biases demonstrate the margins of error in normal human perception.

Despite its appearance, the above middle bar does not change in color or tone. If you cover up the image so only the bar is showing, you will see this. For those who have never before seen this image and do not know it is a visual illusion, the rational answer would be the bar changes in tone. To say it is solid in tone would be irrational and defy what your eyes tell you. It is not that all false perceptions of reality are due to faulty logic. Many are formed using what is considered sound logic and reasoning.

The emotional versus the intellectual

The human has evolved to simultaneously use two complementary and competing methods of processing. I'll call one way of thinking "the emotional" and the other "the intellectual." (Roger Sperry History 2017) (Jarrett 2012) (Goodman 2017)

All humans exhibit these two ways of thinking and you notice them in yourself: the emotional versus the objective, the artistic versus the logical, the head versus the heart. Deep thinkers come to the point where they realize they cannot answer important questions because these two ways of thinking give them different and sometimes mutually exclusive answers. That right there shows knowledge-limits of humans.

These different and competing ways of thinking are happening at the neurological levels of your brain.

Parts of the brain process sensory information in an emotional, holistic way. Emotions are integral parts of human thinking and function. They are integral parts of human intelligence and reason, including as used by scientists and mathematicians. Further, much important human thinking– such

as about metaphysical and emotional meaning, morality and ethics– in part lay beyond objectivity and logic. (Okon-Singer 2015) (Pessoa 2018)

Separately and simultaneously, other parts of the brain "intellectually" process and define information. The raw sensory information has to be given structure and definition to try to understand what to do with it. To do this the brain creates an imagined structure for the information. The standard human perceptions of space, categories, identities and time are artificial constructs of the brain.

Symbolic language is practically useful, but an artificial translation of the things it is trying to represent. Humans must translate things to understand them, but what they understand is the translation.

Combining in a particular way these two particular methods of information processing, humans are adept at basic functioning. Yes, there is a margin of error and sometimes big mistakes are made. However, on the whole, humans are adept at doing such things as judging distance and size, identifying objects in their daily lives, walking through a room without hitting a table or wall.

However, when one gets into realms of philosophy, theology and even science, the natural misperceptions, blind spots and biases take on profound significance, making it impossible for humans to have objective knowledge.

Human thinking is about function

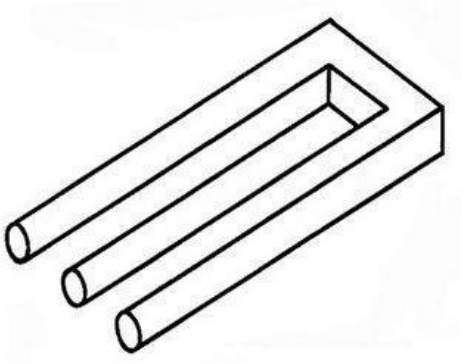
Humans have evolved for survival, not finding truths and objective facts. To survive and function, humans must do other things such as act in ambiguous and mysterious situations. Many of these things are not about identifying facts and searching for truths, but making speedy practical decisions. Humans are hard-wired to make decisions in the face of ambiguity.

An example is avoiding instant danger, which is about how to react to the unknown and unknowable. If an unidentified large object is moving quickly at you, taking the time to accurately identify the shape ('gathering the facts') is the opposite of what you need to do. Get out of the way right away, then you can worry about identification later. This is the unconscious self-preservation instinct of humans. This is just one example of how truth-finding is not always the priority of the mind and can

inhibit function. Survival is commonly said to be about erring on the side of safety, as it takes only one time being hit by a speeding car or falling off a cliff to be dead. The keyword there being ‘erring.’ In this case, the mind is designed to err.

The human mind has limited capacity and human function can be inhibited by too much information and even truths. To function, the mind must suppress information. If your task is to move across a room, trying to identify and learn the history and "truth” of everything in the room would lead to you dying of old age before you reach the other side. The human has the conscious and unconscious ability to focus, which means it focuses on some information and blocks out other information. The human can never get the full picture even of what is physically visible right in front of it. (McGovern Institute 2019)

The following pictured impossible trident visual illusion demonstrates how humans form perceptions by focusing on some information while ignoring other. The viewer forms a perception about the whole from looking at just one end. When she looks at the other end, she realizes her perception was wrong.



Unlike some visual illusions where part of the image is blocked and left to the viewer's imagination, there is no missing information. All of the information is there for the viewer to see, but the viewer forms the initial perception as if information is hidden. She mentally hides, or ignores, the information herself. The human brain doesn’t have the capacity to process all the sensory information it receives, so it is always focusing and ignoring.

Even more than ignoring information, humans must use arbitrary rules, false beliefs and self-deception to functionally achieve. There are regular cases where positive achievement is achieved from a false belief. These include in your daily life. Believing the false, if only temporarily, is a technique we all use to remove distracting thoughts. The following are two examples.

* A placebo often helps because the patient falsely believes it is medicine. When this patient knows what it is, the same placebo may not help.

* A student at university, Jessica is entering her final exams week before winter break. Unknown to her, the beloved family 14-year-old cat Tiger just died at her parents' home. Her parents don't inform her that the cat has died until after the exams, as they believe the knowledge will interfere with her test-taking. After a productive week, her parents break the bad news to Jessica. Jessica understands the delay, agreeing that the news would have distracted her from her studies.

In both these cases, it was a false belief that led to the desired achievement. In both cases, knowledge would have hindered function.

Whether or not human functional thinking can produce "truth" and "objective knowledge" as a side effect cannot be known, though I am doubtful. At the least, this cannot be known, and this places a limit on human knowledge.

Mystical experiences

While the two ways of information processing normally work together, there are instances when the cognitive structures of symbolic language, categorization and perceptions of time and space are suppressed. With these processes suppressed, humans perceive and process sensory information with the emotional parts of the brain. A common example of this is known as the mystical experience. (Dimitropoulos 2017)

To people who have had mystical experiences, they can be profound, sometimes the most emotionally profound and seemingly real experiences they've ever had. They perceive and seem to understand their world in a new and more vivid way. They often feel they gain profound intuitive knowledge about reality. (Watts 2015) (Dimitropoulos 2017)

University of Pennsylvania medical professor Andrew Newberg MD says that people say mystical experiences seem more real than their ordinary experience. (Blumberg 2014)

> "(Mystical experiences are) the only description that I've ever seen where somebody will say 'I got beyond my brain, I got beyond my ego self, I got beyond the subjective and objective nature of the world;' and then they see the universe, and they experience the universe in a very, very different kind of way . . . I think these experiences need to be taken very seriously. I think they

> tell us something about the nature of reality and how we perceive that reality."-- Andrew Newberg MD (Newberg in Blumberg 2014)

During the experiences, the sense of time slows or stops, normal daily categories and labels fall away. The experiencers often feel as if they have become one with everything else. Additionally, there is often a rush of dopamine that makes the person feel bliss. Thus, people often not only get a different rush of sensory information but an associated sense of beauty, happiness and love. Notice how religions and the spiritual often refer to the universe as one and promote the idea of universal love. (Shader 2008)

Mystical experiences happen in different situations. They can happen in religious ceremonies such as whirling dervish dances of the Sufi Muslims, Cree Sun Dances, Hindi Yoga and Catholic prayer. They often happen during deep meditation, and meditation is an integral part of religious ceremonies. (Britannica 2015)

As many people perceive mystical experiences as an experience of transcendental or higher reality, they have been the genesis of all religions. Mystical religions and religious subdivisions, including Buddhism, Hinduism, Mystical Christianity, Jewish Kabbalah, Muslim Sufism, many American Indian and other aboriginal religions are trying to gain and sustain the mystical way of thinking. That's what all those religious ceremonies are about. Jesus, Moses, Muhammad and other prophets had mystical experiences.

While they are commonly associated with religions, atheists and agnostics experience them as well. The religious interpretation is one interpretation by some. The atheists Bertrand Russell and Richard Dawkins experienced them. After hearing someone describe their religiously significant mystical experience, Dawkins said he had had a remarkably similar experience but without the religious framework. (Russell 1914) (Steinhart 2012)

The events can happen spontaneously to the secular, when in nature or doing secular tasks. Mathematicians can have it happen when doing math, and it can happen during fasting, sports and secular meditation. They can happen when experiencing or creating art. The runner's high or athletes seeing everything in slow motion are considered examples. (Taylor 2012)

Primatologist Jane Goodall said, "I don't have any idea of who or what God is. But I do believe in some great spiritual power. I feel it particularly when I'm out in nature. It's just something that's

bigger and stronger than what I am or what anybody is. I feel it. And it's enough for me." (Goodall in Goodreads 2015)

Certain drugs can produce mystical states. These include LSD, psilocybin, mescaline, peyote and marijuana. Peyote is used in some American Indian ceremonies, and marijuana is sometimes used by Hindus and Rastafarians. Mystical experiences can happen during some mental conditions including epileptic seizures, schizophrenia and bipolar mania. (Pahnke 1966) (Vanderpot 2017) (Parnas & Henriksen 2016) (Dillard-Wright 2017)

Mystical experiences are experiential and a-rational

Mystical experiences are only experiential. By definition and neurology, they are beyond symbolic words, logic and rational explanation. Those cognitive constructs have to be suppressed for mystical experiences to happen. Philosopher and psychologist William James said that the experiences are beyond words. He said that they cannot be fully explained or communicated to others, just experienced. (James 1902)

Even if the mystical experiences of people are very similar, the individual interpretations and explanations are influenced by the individual's background, culture and beliefs.

Columbia University philosophy of religion professor Wayne Proudfoot wrote that mystical experiences are explained in a religious framework and that the framework is unconscious. A Christian may say she saw the Christian God, a Muslim Allah, and an atheist a secular vision. Princeton University philosopher Walter Terence Stace wrote that mysticism is perception not interpretation, and that only after the mystical experience is the interpretation made (Proudfoot 1985) (Stace 1960).

With his theory of Pluralism, philosopher of religion and Presbyterian Minister John Hick believed that if different religions have genuine views into transcendent reality (and he believed that they have), these views are filtered through the people's culture and time and place in history. (Cramer 2015)

> "In the late 1960s, Hick had (a) set of experiences that dramatically affected his life and work. While working on civil rights issues in Birmingham (UK), he found himself working and worshiping alongside people of other faiths. During this time he began to believe that sincere adherents of other faiths experience the Transcendent just as Christians do, though with variances due to cultural, historical, and doctrinal factors. These experiences led him to develop his

> pluralistic hypothesis, which, relying heavily on Kant's phenomenal/noumenal distinction, states that adherents of the major religious faiths experience the ineffable Real through their varying culturally shaped lenses. "— David Cramer Ph.D., Department of Religious Studies, Baylor University (Cramer 2015)

No one can be certain what mystical experiences mean

While there is no debate that they involve genuine neurological experiences, there has been a never-ending and ultimately unanswerable debate over what are the mystical experiences and what if any spiritual or epistemological meaning they have. Humans can't have the final or objective answer.

Some believe they are proof of God. They say God isn't something you scientifically measure or intellectualize, but something you feel and know through this feeling. Atheists often scoff at people who say that God exists due to their personal emotional experience. However, we all have strong intuitive beliefs, beliefs that guide us and give emotional meaning to our lives and that we teach to our children, but that are subjective. (Christian Standard Bible 2017) (Craig 2017)

Skeptics believe the mystical experiences are strictly in the mind. Skeptics often have a rational point of view of the world and accept the normal human perception of the world as accurate. They often use science as an arbiter, and don't buy anything that hasn't been, or can't be, proven by science. (Jaekl 2018)

Mystical experiences give emotionally valuable if subjective perspectives on the world, but their veracity and ultimate meaning cannot be known. The insights are beyond logic and scientific testing. They may be less formed by the normal artificial cognitive constructs of the mind, but they are still formed by the limited human senses and evolutionary biology.

In the beginning and the end, they are subjective personal experiences. Trying to intellectually interpret them is at odds with what they are. It is fine to have an opinion about what truly is this experience. However, realize that it is just that: an opinion.

Mystical experiences point out the artificial cognitive constructs of the human brain

While it is impossible to know what are mystical experiences, one key is that they show us that our normal perceptions of time, space, identities, categories and order are artificial constructs of the mind. To see them as direct representations of reality is false

Another key to realize is that much scientific and other work (history books, sociology, economics, geography, encyclopedias, dictionaries, literature) are working to expand in these arbitrary and artificial cognitive constructs. These cognitive representations have practical use, but are still artificial and miss much of reality and nature.

An example is that scientists use time as a standard and precise measurement. Yet, if you ask scientists and philosophers they will tell you they don't know what really is time, if it objectively exists, and, if it does objectively exist, if the conception and definition they use has any resemblance to what it really is. Most scientists would say that the definition they use of time is an artificial and arbitrary convenience. (McTaggart 1908) (Jaffe 2018) (Razumovsky 1993)

The way humans commonly perceive time is a product of the brain. When particular parts of the brain are suppressed, such as during religious experiences, medical disorder or drug use, a human perceives time very differently.

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3 Julian Jaynes, and the Relationship Between Mental Disorders and Religious Visions

> "Many of them said, '(Jesus) has a demon, and he is mad; why listen to him?'"— John 10:19-20

The similarity between religious visions and the hallucinations and delusions of people with mental illness has long been known. Numerous mental conditions produce mystical or spiritual experiences, including bipolar disorder, schizophrenia and epilepsy. The focus here is on schizophrenia. (Crowly 2010)

Schizophrenia is a complex disorder. Symptoms include social and language problems, problems with working memory and self-awareness, and disconnect from standard perceptions of reality. Schizophrenics often hallucinate commanding voices that instruct them what to do. The voices are as sensorily real to them as when someone talks to you, and commanding voices are much like religious voices. (WebMD 2020)

Schizophrenia involves cognitive areas of the brain that are damaged, underdeveloped or deteriorated. These are the cognitive areas that organize information and make our perceptions of time, space, categories and symbolic language. The perceptions are artificial but needed for normal function and to create our normal perception of reality. With the cognitive functioning suppressed or damaged, schizophrenics process information in a more emotional way similar to what happens during mystical experiences.

In his landmark book *The Origin of Consciousness in the Breakdown of the Bicameral Mind*, Princeton University psychologist Julian Jaynes theorized that many mental illnesses are just early ways of thinking. He said schizophrenia is the way early people thought.

Jaynes said that schizophrenia is a vestige of early, pre-conscious human thinking. He said that the commanding voices schizophrenics hear were the early gods, and that early people sensorily experienced "gods" and muses in sight and sound.

The cognitive and emotional parts work together to function, and the parts of the brain receive information or messages from other parts of the brain. Modern brains use the cognitive structuring to make sense of the messages they receive from other parts of the brain. Modern humans require these processes to have mature consciousness, or the ability to consciously look at and try to understand their emotional responses and sensory information. Consciousness is often described as thinking about one's own thinking.

With modern brains, the emotional parts of the brain are much less dominant than with early peoples, as the modern cognitive parts of the brain have gained more influence.

As early humans lacked advanced language, metaconscousness, introspection and mental control, they received messages without the cognitive, conscious analysis. Humans thus received the messages from other parts of their brain as direct vocal commands, and took them as direct commands from Gods.

Early people sensorily perceived and “heard” Gods and muses. Their brain was talking to itself, but they did not have the conscious ability to know it was their own thoughts from their own brain.

Jaynes believed the Iliad and early parts of the Hebrew Bible were written by such non-conscious people, and that you can see that later parts of the Bible and the Odyssey were written by people who were gaining modern consciousness. This perspective gives great insight into the Hebrew Bible and other early religious and mythical texts. He said there were so many gods in the old days because the gods were made by the people’s brains.

This unconscious “follow command” way of thinking was essential for social functioning and survival in early days. Jaynes said early societies were hierarchical like bee colonies that required rote following from its members. However, these societies and cultures were upheaved, including by natural disasters and migration, and human thinking had to evolve.

To adapt to the more complex environments, human brains evolved the cognitive structure and advanced language needed for today’s consciousness. The intellectual cognitive parts of the brain became more dominant. As the cognitive structures and self-reflection developed, the commonplace religious visions and voices diminished or disappeared from most peoples’ daily lives.

Jaynes wrote that, as consciousness developed and the gods sensorily disappeared, humans felt that their gods had left them. They developed religious practices and leaders in an attempt to “bring back the gods.” Religious practices such as meditation, Gregorian chants, Whirling Dervish and Sun

Dances, and prayer alter how the mind functions by suppressing those cognitive parts of the brain. They bring humans to early thinking.

Shamanic and similar mystics were people whose brains worked in the old way, and societies used them as conduits to the gods. Before their brains developed, children were known to be more prevalent to having religious visions.

Notice how Christians often say that immoral thoughts and questioning of dogma are sinful and go against God. It is the type of conscious counter thinking and reflection that prevents mystical experiences and "makes the gods go away." Schizophrenic Nobel Prize-winning mathematician John Nash said he slowly removed his delusions by consciously dismissing them as delusions. (Rettner 2015)

This all shows that human thinking, old and new, is about function in particular environments. It also shows that human consciousness requires artificial cognitive constructs. Consciousness is and may necessarily always be artificial, arbitrary and subjective, and, in that sense, false representations of reality.

A medical school study for the Indian Journal of Psychiatry found that ninety-nine percent of the schizophrenic patients in the study believed in God. (Triveni, Grover and Chakrabarti 2017)

Schizophrenic delusions and hallucinations commonly have religious content. However, the delusions and interpretations of hallucinations are influenced by upbringing and culture. In Egypt, the prevalence of religious delusions fluctuated to changes in how much Islam was emphasized in the country. The studies reveal that culture can have a powerful influence on the types of delusions and hallucinations people experience. (Aldous 2017)

Schizophrenics with no religious upbringing more commonly interpreted the voices as coming from family members or aliens, or have delusions that they are being persecuted by the government rather than the Devil.

How to pathologically consider religious visions

A long and continuing medical, theological and philosophical debate has been about how and if to medically distinguish between religious visions and hallucinations.

How they are pathologized is based on how common they are, how they fit in with prevailing beliefs, how they relate to the person functioning and fitting in with society's norms, and how the individual feels about them. (Van Heugten 2015) (Cherry 2020)

Steven Gans MD, assistant professor of psychiatry at Harvard, wrote, "Mental variations today are called disorders when they cause personal distress and in impairment in multiple areas of life, such as working, social, relations, etc." (Van Heugten 2015)

If a religious vision fits in with normal social views and perception of reality-- say a vision of Jesus in a devout Christian society--, allows the person to fit in fine in society, and the person doesn't find it distressing, then it is not pathologized. Spiritual visions and beliefs in an unseen deity are accepted in many cultures.

If the same type of vision or belief does not fit in with society's perception of reality, prevents the person from fitting in with society's norms, and causes the person great personal distress, then it is pathologized.

Pathology is subjective to the culture. It categorizes ways of thinking based on social function, and does not address the validity of thinking beyond that medical scope.

> "Psychosis has been defined as 'any one of several altered states of consciousness, transient or persistent, that prevent integration of sensory or extrasensory information into reality models accepted by the broad consensus of society, and that lead to maladaptive behavior and social sanctions' . . . This is based on the assumption that we understand the nature of 'reality', and that there is a narrow band of 'normal' perception, outside of which there is little useful potential."– Nikki Crowley PhD, Assistant Professor of Biology and Biobehavioral Health, Pennsylvania State University (Crowly 2010)

There have long been debates about what should be pathologized. What has been pathologized in the past isn't always pathologized today, and what is pathologized today may not be in the future. Years ago, homosexuality and being left-handed were pathologized, and psychologists, educators and psychiatrists tried to cure them. Attention deficit syndrome is problematic in today's structured classrooms and workplaces but was essential for hunters and gatherers in earlier societies. Dyslexia as a diagnosis didn't exist in early days when most people couldn't read.

Thomas Armstrong PhD, Director of the American Institute for Learning and Human Development, says computer scientists may come to prefer artificial intelligence that thinks like an autistic person rather than a normal human. (Armstrong 2018)

> "Whether you are regarded as disabled or gifted depends largely on when and where you were born. In other times and other places, there have been different disability/ability diagnosis depending upon cultural values. . . . We should not regard diagnostic labels as absolute and set in stone, but think, instead, of their existence relative to a particular social setting."-- Thomas Armstrong (Armstrong 2018)

Many paths

There are many ways to reach a mystical state. The Hindu proverb is "There are hundreds of paths up the mountain, all leading to the same place, so it doesn't matter which path you take." Hinduism has its four paths to enlightenment. Each is tailored to the individual's personality. One is for the emotional person, another for the physical person, another for the intellectual.

From childhood, Joan of Arc heard commanding religious voices. There have been modern guesses about her possible mental disorders, including schizophrenia, epilepsy, bipolar disorder, bovine tuberculosis from drinking unpasteurized milk, and having a young not yet fully developed brain. However, Joan of Arc's pathology is beside the point. Theologically and epistemologically what matters is her mystical state of mind itself, not the particular neurological or biological path that got her there.

Jesus Christ would be pathologized today, and many during his day questioned his sanity. However, that is similarly beside the theological and epistemological point.

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4 Art as Religion

"Bach is Bach as God is God"-- Hector Berlioz

Art is a form of religion. It uses symbols and stories to create a sublime, emotional experience. This demonstrates that religion, or at least spirituality, is experienced by the secular, including atheists. And, of course, art is used by all religions.

Art gives intuitive insight about the world and ourselves. Yet not only is art irrational, it is often based in lies. The plot of a story is often illogical, physically and historically impossible. A novel is made up. A science fiction movie is a figment of the imagination and never happened and never will happen. Abstract and many other styles of paintings do not picture physical reality.

What does this say about human thinking, about human knowledge, that not only does some of it lie beyond logic, reason and observed objective facts, but that it is often found in illogic and lies?

Picasso said,"Art is a lie that takes us closer to the truth."

Francis Bacon said, "The job of the artist is to deepen the mystery."

Traditional religion is much like art. It has stories, scriptures, dogma. It shouldn't be taken literally. Even though I believed he likely lived, Jesus is a metaphor.

Religious scriptures, stories and symbols are not to be taken literally, but as with the fiction of a movie or novel give people insight, ideas, teach lessons and give intuitive knowledge. As with art, they communicate ideas and feelings that cannot be produced directly or literally. It is a mistake of both the religious and the anti-religious when they take religious scriptures and symbols as literal.

The following looks at some psychological and neurological aspects of art. Keep in mind how they are also integral to religion.

* * * *

Connecting to the Unreal

A complex and fascinating question is why do humans have such strong emotional reactions and human connections to unrealistic art? Why do viewers become scared, even haunted for days, by a movie monster they know doesn't exist? Why do humans become enthralled by distorted figures and scenes that aren't realistic? Why do viewers form emotional attachments to comic book characters?

The answer lies in that, while humans know art is human-made artifice, they decipher and perceive art using many of the same conscious and nonconscious methods that they use to perceive reality. Looking at how we view reality shows us how we view art, and looking at how we view art helps show us how we interpret reality.

The following are aspects.

Art perception is irrational

People don't perceive art or reality on the entirely logical or literal levels. Art is designed to communicate emotionally. Music is felt. Beauty and ugliness are psychological. Unreal things, distorted figures, a fictional monster in a movie can strike a primordial chord in us that our normal daily reality can't. A computer-generated science fiction landscape can be perceived as beautiful.

Picasso said, “You will not understand art as long as you won't understand that in arts 1+1 may give any result but 2.”

Art is subjective and personal

Subjectivity is an integral part of the human experience, and all human perception and judgment are subjective. Love, lust, like, dislike, taste, smell, views about beauty and ugliness. A subjective experience is a product of the individual’s mind. While real and often emotionally profound, the subjective experience cannot be objectively measured by others.

When someone is listening to music, the music’s note, pitch, speed, volume and the listener’s ear vibration and heartbeat can be measured by scientific instruments. However, the listener’s aesthetic experience cannot. This experience is experienced by the listener alone. Even if asked to, the listener could not fully translate the experience to others, in part because it is beyond words and their own consciousness. The emotional experience is experiential.

What does it say about identifying what is a work of art that your enjoyment and appreciation of a work often changes from viewing to viewing or listening to listening?

Humans mentally adapt to and accept new and artificial worlds

Throughout our lives, we learn new games, rules, rituals and fashion. In art, we adapt to musical styles, genres, conceits. Through repetition, artistic symbols and associations become more than convenient intellectual devices. They become ingrained.

Our perception of reality is formed by the conceits of art. Around the world, people perceive the Old West from Hollywood movies, even though historians will tell you those depictions are historically incorrect. People gain dubious perceptions of faraway places and peoples from sitcoms and action movies.

Symbols

Symbolic language is an integral part of the human experience on many levels. A symbol is something that represents something else, something larger. It is a shorthand, often to a complex idea.

To many, blue at the top of an abstract painting or kid's sketch represents sky, and green at the bottom represents grass or ground. A gold ring on the finger symbolizes marriage. Shadows in a movie can symbolize danger and mystery. A cross represents Christianity.

Not only can commonly known symbols be used in art to communicate ideas, meaning and mood, but this illustrates how humans don't need reality to communicate real ideas. Symbols literally aren't the thing they symbolize.

Literature, this paragraph you are reading, is a long series of symbols. The meaning isn't in the symbols themselves, but what they evoke in your mind. I couldn't communicate many of the ideas in this book without these symbols.

Each art medium is limited in what it can show literally

A painting or sketch doesn't have physical depth or movement. A silent movie doesn't have voices even when the people on screen converse. The letters of a novel can't graphically show a sunrise. This means a medium must use artificial devices to communicate the literally undepictable. Comic

strips use dialogue bubbles, silent films use captions, two dimensional art uses symbols to depict three dimensions, movies use music to express mood and emotions.

Speculation, play-acting, day and night dreams

All humans speculate about the past and future, things that haven't happened, things could happen. People wonder what their life would have been like if they were born in a different family or time and place or with different looks. Someone wonders how the conversation would have gone differently if he hadn't made that stupid remark. People ponder what their life will be like in the future. Speculation is an essential part of human intelligence. Great inventions and human achievements arise from speculation.

Humans daydream, play-act, dress up as different people, mimic others, act as if they are animals to amuse their kids, dress up in costumes for Halloween and masquerade balls, have imaginary in their head conversations, practice speeches before imaginary crowds.

In our sleep we have strange and surreal dreams of impossible situations and lands and scenarios. Dreams can resonate and haunt us deeply. Dreams affect how we think and act in our daily lives.

The surreal situations, fictitious plots, made-up characters and distorted figures of art go hand in hand with our normal day-dreaming and play-acting lives. A novel may have a made-up plot and characters, but our daily speculation and daydreams involve similar fiction. Science fiction is often a serious intellectual if also entertaining speculation of the future and space. A painting or movie may have a surreal landscape and bizarre characters, but so do our dreams. Much art is about dreams and daydreams.

Humans know and feel there is more than what they see and can comprehend, more than what they experience in their day to day lives

Humans know people in a society hide their true thoughts and feelings. They know they have feelings and ideas that can't be put into words. They know there are concepts they can only imagine.

The unrealistic, the impossible, the surreal, symbolism can evoke that which realistic art and our daily lives don't. Abstract patterns and wordless music can evoke secret memories, emotions and philosophical ideas that a photograph or neighborly chat cannot.

A photorealistic snapshot can reveal little about what the subjects think and feel, while an expressionist painting can tell a lot.

* * * *

Basic Qualities that Produce Emotional and Aesthetic Reactions

Using brain scans, neuroscientists such as Semir Zeki of University College London and Vilayanur S. Ramachandran of the University of California at San Diego have shown that much of our aesthetic perception of art and the world is natural emotional reaction to basic sensory stimuli. Whether viewed on their own or incorporated into art or the physical world, many basic qualities and designs evoke natural psychological, aesthetic and even physical reactions in humans. (Pak and Reischman 2017) (Zeki 2018) (Ramachandran 1999) (neuroaesthetics.net 2019),

The reactions we have to certain colors, angles and textures are in part hardwired into our brains, though can be honed and altered with experience, education and culture. Artists use these emotion-inducing qualities to help express their artistic ideas and create aesthetic feelings. A landscape painter may use warm colors and soft lines to evoke pleasant and serene reactions, while an advertising poster artist or propagandist may use bold colors and jagged lines to excite the senses and raise the blood pressure. Our emotional reactions are an evolutionary part of our functioning and survival as a species.

The following are examples of basic qualities that produce emotional reactions.

Symmetry and balance

Humans are naturally attracted to symmetrical and balanced scenes in nature and designs in art. They judge the health and beauty of other humans by symmetry. The standard beautiful face and healthy young body are symmetrical. On the flip side, someone with a hunchback, limp or disfigured limb is seen as injured or diseased. A flower that is wilted or a tree that is tilted to one side is seen as sick or damaged.

Unrealistic exaggerations

Professor Ramachandran says that humans are psychologically influenced by unreal exaggerations of certain qualities. (Beitman 2014)

Take size as one example. To humans, the larger the wolf or alligator or gorilla or mountain, the more intimidating and awesome. The larger man is assumed to be the more powerful than the smaller one. Logically, you know you will likely someday see a house and bear bigger than you've seen before.

This mindset extends beyond the bounds of reality. In the extremes, we get impossible super powerful and super-sized characters such as Hercules, Superman and the Incredible Hulk, or giants in the Bible and myths. If a gorilla is intimidating due to its size and strength, then King Kong is that much more intimidating.

This helps explain our psychological reactions to the exaggerated in art and myths, dreams and daydreams.

Mysteries and solving mysteries

Humans are distressed or intrigued by ambiguous scenes, the juxtaposition of seemingly unrelated things, mysteries and puzzles in art and the physical world. Dark and fog hide things from view, and are used in mystery and suspense movies. Our initial psychological response towards mysteries, as is often found in art, is natural. As is the following trying to figure out what is the meaning in mysterious scenes and in the relationship between juxtaposed objects.

Emotionally responding to then feeling psychologically and intellectually compelled to solve mysteries is natural to humans, as is the pleasurable response we get when we feel we’ve solved the mystery. There’s a reason why so many people get enjoyment out of television mysteries, jigsaw and crossword puzzles– at least when, in the end, the mystery is solved or the puzzle finished.

This mirrors our ancient days when humans in the wild were at first distressed or intrigued by a mystery then relieved when it was solved.

Humans enjoy solving a mystery more than knowing the answer right away. The final pleasure is heightened when it is preceded by mystery and mental problem-solving effort.

Meaning and identification

People naturally like scenes, situations and art where they know what are the meaning and identity. People often have viscerally negative reactions to abstract art because they don't understand it. They don't know what it is supposed to mean, they don't see identifiable objects. They want it to be like 'normal' art where there is a boat or a house or animal or mountains.

People who are artists or otherwise more educated about art, or more naturally open-minded, tend to like abstract art more. They understand it more. With more exposure and longer viewing of an abstract painting, people tend to like the paintings more. It's their initial gut reaction that is most negative and visceral.

This is a natural reaction in humans throughout our history. Humans have never liked, or at least are highly intrigued, when faced with a situation where they have no idea what is going on. They want concrete answers. It's important to survival.

Identifying objects through basic qualities

Professor Zeki says humans naturally identify objects by basic, essential qualities. As objects such as trees, apples and dogs each vary to degree from specimen to specimen, we must be able to identify them by these basic qualities, such as general color, general shape, general size and weight. (Zeki 2018)

Many artists reduce the subjects of their art into the bare essentials that allow the viewers to recognize what they are. Look at a Modigliani or a Cezanne painting, a comic strip or child's sketch and you immediately identify the woman, the house, the dog or sun.

The ability to identify objects by general key qualities has been essential to our survival since our ancient days. Bananas, for example, don't come in the exact same sizes, shapes and tones, and humans need to identify what objects are edible.

* * * *

Semir Zeki says that, though they didn't realize it, great artists were neuroscientists. They used angles, symbols, colors and other qualities to influence the audience's minds. One significant point about this is that it shows that the mind can be artificially manipulated. (Pak and Reischman 2017)

That humans can be affected by the fake of art, the artificial– sometimes even more so than reality– says something significant about the reliability of human aesthetic perception. Human emotions being a direct path to identifying larger objective truths is at best a dubious notion.

Artworks and religions are artifacts, showing how humans think and perceive, their physiological abilities and limitations, the questions they have, the human condition. Alien psychologists and scientists from the future would learn about humans from these artifacts.

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5 Cognitive Influences Behind Beliefs in and Conceptions of God

Whether or not God exists and what form and nature it takes, human conceptions of God are formed by human minds, and different minds create different conceptions.

There are many innate cognitive and neurological reasons for people believing in and having particular conceptions of God or religious higher power. The belief in and description of God or higher power are byproducts, or extensions, of innate unconscious psychological tendencies humans use to function and survive as a species.

A human brain is a meaning-making machine. Humans constantly look for patterns, purpose and cause-and-effect relationships wherever they go. These contribute to many religious and spiritual beliefs. Just as one tries to find motives, patterns and identifications in a photograph or abstract painting, so do humans when contemplating the universe and unknowable.

The following are some of the cognitive processes that lead to religious beliefs.

The search and desire for order

Humans tend to desire order in situations, both in their daily lives and in ambiguous and chaotic information and situations. This is a natural part of identification, and an essential aspect of function and survival.

This extends to people's perceptions about the unknowable universe and reality. Not only do many people want order and structure in the universe, they imagine it exists and artificially create it. This desire for order, structure and identity influences people in believing in God, a higher power and orderly universe. While not believing in God, many non-theists imagine that there is order and structure to the universe, even though it is impossible to know there is order. Even if there is order, it may be in a different form than humans can conceive of or sense.

In some religions, God brings order out of chaos, and religion is a fight for order in the face of chaos. The ancient Egyptians believed that the god Atum created the earth and its order and principles out of chaos and darkness. It was the Egyptians' duty to live moral and ethical lives to keep the chaos at bay.

It is a common religious belief that moral order comes from God or higher power, and some religions believe that an atheist cannot have morals.

The innate tendency to perceive meaning and purpose behind things and events

Knowing what is the purpose and meaning of a scene, groups of people or non-human animals is part of social function and survival. If a group of people or dogs approach you, you want to know their purpose. If you hear a bang in the dead of night in your house, you want to know what is the cause.

Psychology professor Deborah Keleman wrote that if you ask children why a group of rocks is pointy, many theorize that it is so animals don't sit on and break them. She said if you ask children why a river exists, they will often say so humans can fish in it. The children assign a meaning and purpose that don't exist, and ones that match their expectations, biases and human logic. Also, note that they perceive the rivers to exist to serve humans. (Keleman 1999)

Because of this bias, Kelemen says that children can come to the idea of a being that created the universe and earth with a purpose and meaning. This bias, or tendency, extends to many adults.

It takes training and education for one to overcome these rote beliefs.

> "Romanian Roma adults with little formal schooling (less than six years on average) were more than twice as likely to endorse purposeful answers than highly educated Roma adults (averaging approximately 12 years of schooling). They also more closely resembled American schoolchildren (first through fourth grades) than either highly educated Romanian adults or American adults. These results suggest that the tendency toward extending teleological reasoning from living to non-living natural things may recur across cultures, and that it is not merely outgrown but must be out-educated for it to go away." -- Justin Barrett, Thrive Professor of Developmental Science at Fuller Graduate School of Psychology (Barrett 2011)

Humans perceive minds beyond their own

Humans perceive others having minds. This is a part of function and survival of the species. Humans are social animals and need to guess the thoughts and intentions of human and non-human animals.

What is telling is that humans not only imagine minds in humans and other animals, they imagine or project minds and thinking on inanimate objects. These include teddy bears, artworks, dolls, toys and cars. Humans easily accept cartoon characters that talk and think, even when the characters are cars, toasters and trees.

Many figuratively or literally imagine nature and the universe having minds, and this can lead to conceptions of God and higher power. Even some non-religious scientists and philosophers talk about plants, the planet and the universe having consciousness, which is coming very close to believing in God.

Anthropomorphism

Humans have an innate tendency to perceive non-humans as thinking and feeling as humans do. Humans make non-human animal and non-animal cartoon characters that act like humans. Humans see human faces in abstract information, and describe inanimate objects and nature in human terms: mother earth, father time. It should not surprise that humans can imagine the unseen universal reality as a being, that deities and Gods are depicted in human-like forms and having human-like thoughts, motives and ideas. (Nauer 2019)

Similarly, humans often depict non-animals as having animal qualities: the howl of the wind, the hound of love. Many deities and gods are depicted in non-human animal forms.

Anthropomorphism is not always meant literally but as a symbolic translation. However, this all shows how humans perceive things, even random information and the unknowable, in human terms.

Humans perceive things, everything, in human emotional terms

Emotions and aesthetics are integral and constant parts of human perception, judging and thinking. Humans automatically make emotional judgments and perceptions. How new scenes are perceived, how to perceive a stranger, whether a new fact is considered to be true or false are in part done on the intuitive, emotional level. Our descriptions of non-human things are steeped in human emotional and aesthetic terms: universal love, the angry sea, cruel fate, happy sun.

As people imagine the universe and unknowable in emotional terms, it is natural for people to see the transcendent reality not only in human terms but as human-like. All humans perceive and define the universe and ideas using their emotions and in human emotional terms. A universe and reality that are defined emotionally is a step away from defining it as a living being.

Humans automatically apply narratives and stories to things

Just as humans interpret meaning, motive and identifications in ambiguous information, humans automatically interpret things-- an object, a painting scene, a snapshot of a person-- as part of an ongoing story and narrative. This is an expression of their philosophy of cause and effect, and human perception of time, meaning and purpose. Humans even apply narratives and stories to abstract information.

Humans apply such narratives and stories to the universe and the unknown, meaning they interpret it in human ways. Religious scriptures are in the forms of stories and narratives. The Christian Bible has been referred to as “The Greatest Story Ever Told.”

Religious symbols and texts are figurative and translations

Depictions of gods and transcendent reality, religious stories and ceremonies are human translations of abstract ideas for understanding, teaching and communication. The learned religious know that they are just translations of ideas beyond human understanding.

Teaching must be done in languages the students understand. Jesus taught in parables, Buddha in Zen riddles. The Christian Kingdom of God doesn’t mean a physical building, but a state of enlightenment. Hindus use deities to represent transcendental reality, because a literal depiction would be beyond normal human comprehension. As the Hindu student becomes more and more learned the deity depictions of transcendent reality becomes more and more intricate and complex.

Some anti-theists and atheists make straw man arguments against theism, mocking theists’ beliefs in deities and myths. However, they do not realize that the deities and stories are not taken literally by the learned religious. Learned Jews and Christians do not believe God is an old

man with a white beard and robe sitting on a throne in heaven, and learned Hindus do not believe in thousands of Gods.

One's style of thinking influences one's beliefs

Those who come to conclusions emotionally and intuitively, or 'from the gut,' are more likely to believe in God or religious higher power. Those who have had their gut reactions proven correct are more likely to trust the natural cognitive tendencies described in this chapter, and are more likely to believe in magic, the paranormal and God.

Those who think logically and have had their intuition proven wrong are less likely to believe in God or religious higher power. They have learned to question, or double-check, their normal cognitive biases and innate tendencies. They think of other possibilities.

> "It is the standard skeptical narrative that people are biased in numerous ways. The 'default mode' of human behavior is to drift along with the currents of our cognitive biases, unless we have critical thinking skills as a rudder or paddle (choose your nautical metaphor). Metacognition – thinking about thinking – is the only way for our higher cognitive function (evidence, analysis, logic) to take control of our beliefs from our baser instincts."-- Steve Novella MD, Associate Professor of Neurology, Yale University (Novella 2013)

More conscious reasons

Humans often choose to believe in a god and higher powers for conscious reasons. These include if they so greatly dislike chaos that they choose a made-up order, that they want purpose in their life, they fear death, like the idea of universal justice, want a way to deal with loss or suffering. Some do it because it makes them feel better.

Many are theists to fit in with a theistic culture or community. Many religious beliefs are an integral part of culture. Major reasons people belong to a church are for the social aspects and community, and many people follow religious and other practices to get along with the community.

Social order

Shared beliefs, purpose and meaning are important for any social group, and many societies and groups have used God or higher power to keep societies together and functioning. To function, groups and movements require rules and some form of authority or decision-making arbiter. These are standard reasons for the belief in God, even today. Many leaders have called themselves deities or gods or said they had a special connection to a higher power.

> "Dogmatic religion stems from a psychological need for group identity and belonging, together with a need for certainty and meaning. There is a strong impulse in human beings to define ourselves, whether it's as a Christian, a Muslim, a socialist, an American, a Republican, or as a fan of a sports club. This urge is closely connected to the impulse to be part of a group, to feel that you belong, and share the same beliefs and principles as others. And these impulses work together with the need for certainty—the feeling that you 'know, that you possess the truth, that you are right and others are wrong."'--Steve Taylor PhD, Leeds Beckett University psychology lecturer (Taylor 2014)

In the beginning and end, humans can only perceive, think about and conceptualize things from the human perspective. It should be of no surprise that humans think of and describe the universe in human-like imagery and with human-like stories and motives. The non-religious do as well, if not invoking a deity.

These processes neither prove nor disprove the existence of God

Some will say these innate psychological processes prove that God does not exist and is merely the product of the human mind. This is not true. They certainly are evidence that religious conceptions are in part human creations, but they are not proof against or for the existence of God or higher power.

Also realize that secular belief systems, including by atheists, are made using the same cognitive processes.

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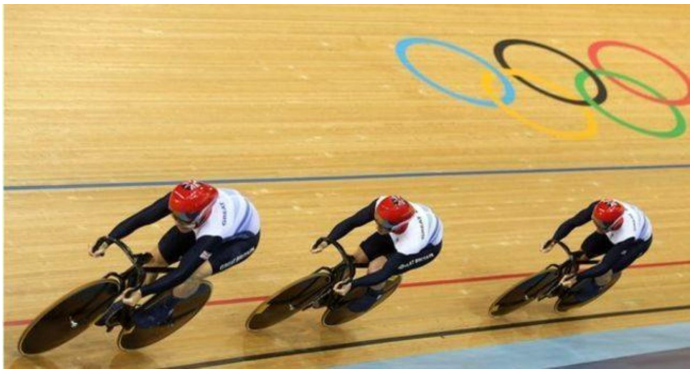
6 Attribution Substitution and Why Humans Cannot Believe God Exists or Does Not Exist

God is such a big question, and I think a question far more complex and impossible to even approach than most people realize, that I tend to question both people who say they believe in God and those who say they don't believe in God. Einstein said the problem of God was the “most difficult in the world,” a problem that couldn’t be answered with a “yes or no,” and one ”too vast for our limited minds.”

I tend to find that when most atheists I encounter say they don't believe in God they aren't even talking about God. They think they're talking about God, but they aren't.

But don't worry, I'm equally skeptical of most theists.



In the picture, which cyclist is going fastest? Most will say the cyclist on our left is going the fastest and the one on the right the slowest.

There are, however, unanswered and unanswerable questions that make it impossible to know. Did they start at the same place? Did they start at the same time? Are they moving forward or backward? Are they moving? I have seen sprint cyclists stay still during a race. Even if it is a normal 1-2-3-Go race, it is possible that the cyclist on the right is going the fastest and the cyclist on the left the slowest at the moment the image was shot. Catching up, slowing down and switching positions are normal parts of all races.

The initial guess was made from a made-up simplified explanation to a complex and unanswerable image.

Attribution substitution is an automatic unconscious process the brain uses to make speedy decisions needed to function. It contributes to many cognitive biases, misperceptions and visual illusions. It is a heuristic used when someone has to make a judgment about a complex, ambiguous situation and substitutes a different but more easily solved situation. (Poulter 2018), (Brockman 2007)

The substitution is done at the automatic subconscious level and the person does not realize she is answering a related but different question. This explains why many visual illusions still trick the eyes after the person has learned they are visual illusions. This also helps explain why many individuals can be unaware of their own biases, and even persist in the biases when they are made aware of them.

An example is when you judge the intelligence or beliefs of a stranger by his or her looks, fashion, age, race, sex, accent or nationality. Determining a person's intelligence and beliefs is a complex problem that must be done at the closely examined person-by-person level. However, everyone makes automatic judgments from their stereotypes before they've talked to the person or even when just shown a picture.

People judge a work of art by deciding what they think it is– how the pieces fit together, what is its intended meaning, genre, et cetera– then judging that. When someone says a work of art is trite and silly, what he is saying is his interpretation of what is the art is trite and silly.

I didn't say the work can't also be trite and silly.

"Do you believe God exists?"

Answering this question "Yes" or "No" is an example of attribution substitution.

Whether or not God exists, God is impossible to define. "God" itself is just a human-made word, religious symbols of God are just symbols, and God is beyond human definition, language and imagination. Asking "Do you believe God exists?" is, as my late science professor father would

phrase it, “a non-question.” One hundred different people have one hundred different incomplete and subjective definitions and conceptions of God.

The person’s response of “Yes” is stating that he believes in the existence of his definition of God that isn’t and cannot be the true or accurate depiction of God. You cannot believe in what you don’t or can’t possibly know or even imagine. Two people may say “Yes” to the question, but, as their definitions and conceptions differ, they do not believe in or are referring to the same thing.

An anti-theist, or someone who answers “No, God does not exist,” is using the same attribution substitution process. She is making up a personal definition of God, or using someone else’s definition, then saying that that does not exist.

“Do you believe God exists?” is impossible to answer. The question itself is nonsensical, or a “non-question.” It is asking for an answer as to the existence of something that the question itself does not and cannot define.

Or as I might respond when someone asks me if I believe in God, “I cannot answer that. However, if you give me your definition of God I’ll tell you if I believe in that.”

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7 Spirituality and Emotional Thinking in ‘Objective’ Areas Including Science, Mathematics and Logic

Irrationality, emotions and aesthetic taste are used by scientists, mathematicians and logicians, including in their work. This demonstrates that science, and all areas of ‘objective’ and ‘logical’ thinking, is not just about objectivity and cold logic. Emotions and subjectivity are parts of how all humans think. They are integral parts of human intelligence and reasoning.

> "Emotions bear complex relationships to rationality. On one hand they are seen as arational or irrational, on the other they make our actions intelligible and arguably lift us above the purely mechanistic behaviours of machines. Much like human sensory perception, emotions perform an essential function: they inform us about the world."-- Rachel Paine, London School of Philosophy (Pain in Oxford 2020)

Hypotheses are a part of science. Hypotheses are essentially ideas or questions scientists come up with. “In this area of physics (or biology or chemistry), I think this is the way this thing works.” Then the scientists go out and observe, collect data and empirically test the hypothesis. Some hypotheses turn out to be provisionally correct, some turn out to be incorrect, some in-between. That is science.

The key here is that these hypotheses are in part produced via the scientist’s intuition, speculation, imagination, creativity and aesthetic taste.

Einstein said creativity and intuition were essential parts of his theorizing, and that it was essential for humans to use different ways of thinking. He said that imagination is more important than knowledge, and came up with the theory of relativity using mind experiments and speculation, not scientific testing. He came to the conclusion "from the intuition and the general sense of the situation." This demonstrates how subjectivity and biases help drive human intelligence and knowledge, even in science, mathematics and logic. (Einstein in Wald 2007)

Louis de Broglie created the now accepted theory for the double nature of light before the experimental proof existed. Charles Townes said that many of his scientific ideas, including that

led to the invention of the laser and maser, came to him in epiphanies akin to mystical revelations. (emidicalprep 2015) (Wikipedia 2020)

Medical professor Andrew Newberg said that many of our "Aha!" epiphany moments are mini-mystical experiences or changes in the brain's perception where we see things from a new perspective. (Dimitropoulos 2015)

Historian of science Thomas Kuhn wrote that science has popular paradigms that are not based just on empirical data, but societal forces and social psychology. Philosopher of science Paul Feyerabend said that not only was science not as objective and orderly as scientists claimed it to be, but that it shouldn't be. He felt that creativity, rule-breaking and anarchic thinking were essential parts of successful science. He thought scientists' attempts to stick to strict rules and order hindered science. (Kuhn 1970) (Feyerabend 1975)

What is telling is that many of the scientific hypotheses cannot be proven by science. They are beyond observation and scientific testing. There are theories that are widely believed by scientists to be true or logically possible-- such as concerning the creation of the universe, and other worlds and time--, but the scientists know they can never be scientifically tested and proven true. This points to that there may be insights, ideas and hypotheses come to through art, intuition, religion and philosophical speculation that are correct, but can never be proven to be objectively true or false, and many are beyond objectivity. We just can't know. Such is the human condition.

The religious views of five famous physicists

"God is one way of thinking. Science is another."

It is fascinating to look at what scientists and logicians believe beyond their domains of science and logic.

Science has many great uses and will solve more and more questions and continue to expand our scientific knowledge, technology and capabilities. It has helped us learn much about physical nature at the subatomic to the cosmic level. It has helped us cure diseases and reach the moon, extended lifespans and led to computers. However, as with every human method, science has a particular specific scope, methodology and purpose that gives it limits.

Science is strict in what it can and cannot study. It works in areas that can be observed and empirically tested, with extrapolation using human logic. Many things-- many real and important things, including things important to and used by scientists-- are beyond scientific testing and human logic. These areas include art, spirituality, religion and God, morals and ethics, and emotional and metaphysical meaning.

As with all human endeavors, science has axioms, or unproven and unprovable assumptions. Some are genuine beliefs including shared by you and me, while others are definitions needed to make the system work.

Scientific models and theories are practical tools to make predictions about physical phenomena. The theories and models themselves are not representations of reality, and are not even intended to be. British statistician George E.P. Box said, “All models are wrong, but some are useful.”

Philosopher of religion Alan Watts said the scientific worldview was comparable to the Abrahamic worldview. He said that scientific philosophers removed the notion of a lawmaker (God) but kept the notion of law. He said science's axiom about the materialistic order is just as unscientific as a religious dogma of the order and lawmaker of the universe. (Watts 1967)

Professor Reginald L. Bell asked the provocative question “Does believing in scientific assumptions that cannot be proved make these sorts of beliefs more or less like a religion?”

Scientists have a wide variety of views in subjects outside of the scope of science, such as politics, society, art and morality. As with everyone, scientists’ world views, including about science, involve unscientific and irrational thought. It's telling that scientists and mathematicians using the same mathematics, logic and scientific methods come to very different conclusions about topics such as the existence and nature of God

The following looks at the religious views of the physicists **Stephen Hawking, Isaac Newton, Richard Feynman, Charles Townes** and **Albert Einstein**.

Stephen Hawking (1942-2018)– Atheist

The most famous scientist of his day, Stephen Hawking was a theoretical physicist, mathematician and cosmologist at the University of Cambridge. He is known for his theories on gravity, black holes and time.

Hawking was a hardcore atheist, rejecting the Abrahamic anthromorphic God. He wrote: “The question is, is the way the universe began chosen by God for reasons we can’t understand, or was it determined by a law of science? I believe the second. If you like, you can call the laws of science ‘God’, but it wouldn’t be a personal God that you would meet and put questions to.”

Hawking was dismissive of philosophy, saying that the questions it deals in can be answered by science.

Isaac Newton (1642-1726/7)– Devout but unorthodox Christian

The British Newton is often ranked as the greatest scientist of all-time, and was a key figure in the scientific revolution and the Western enlightenment. He developed the principles of modern physics and co-invented calculus.

Newton was devoutly and studiously Christian. However, his views were unorthodox and had to be hidden in Trinitarian society. He was Unitarian and thought being a Trinitarian a sin. He believed in the plain language of the Bible, felt reason should not be used to interpret scripture, and found no mention of the Trinity.

Newton did not separate science from religion or God. He felt that science and scientific laws were a reflection of God. While modern atheist scientists often see the scientific laws as the be-all and end-all, he saw God’s hand in all of science and happenings.

Richard Feynman (1918-88)– Atheist

Richard Feynman was an American theoretical physicist and 1965 Nobel Prize winner known for his work in quantum mechanics.

Feynman was an atheist, and said that the Abrahamic personal Gods were something he could not believe. He thought Abrahamic scriptures were interesting historically, but nothing more.

However, he said there was no inconsistency between believing in science and believing in God. He said he disagreed with scientists who believed in God but not that they were wrong. He explained how and why he appreciated and understood how they could and did hold the two beliefs. He said that holding the two beliefs can be logically consistent and sound.

Feynman used probability to answer all questions, including about the existence of God. He rewrote the question "Is there (or isn't there) a God?" to "How sure can we be that there is (or isn't) a God?"

Charles Townes (1915-2015)– Devout Christian

Charles Townes was an American theoretical and applied physicist, and winner of the 1960 Nobel Prize for Physics.

Townes was a devout Christian, a member of the United Church of Christ. He said "I feel the presence of God. I feel it in my own life as a spirit that is somehow with me all the time."

Townes said that science and religion were addressing different questions. He said that science examined the physical nature of the physical world, while religion addressed the questions of metaphysical meaning.

He said that the religious and scientific discoveries were much alike in many ways. Each requires a faith, a method of inquiry and observation, axioms and inspiration.

Townes saw the limits and problems in science, writing "I don't think that science is complete at all. We don't understand everything, and one can see, within science itself, there are many inconsistencies. We just have to accept that we don't understand."

He thought there might be a day when science and religion come together to give a full view.

Albert Einstein (1878-1955)– Agnostic, pantheist

Einstein was a theoretical physicist who developed the special and general theories of relativity.

Einstein did not believe in a personal or anthropomorphic God, considering that type of conception naive**.** He believed in a pantheistic God, writing to a Rabbi: "I believe in Spinoza's God, who reveals himself in the harmony of all that exists, not in a God who concerns himself with the fate and the doings of mankind."

Einstein was spiritual, a violinist and lover of music.

"The most beautiful and most profound experience is the sensation of the mystical . . . He to whom this emotion is a stranger, who can no longer wonder and stand rapt in awe, is as good as

dead. To know that what is impenetrable to us really exists, manifesting itself as the highest wisdom and the most radiant beauty which our dull faculties can comprehend only in their primitive forms – this knowledge, this feeling, is at the center of true religiousness."

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8 Different Ways of Thinking and Society

Humans have evolved as a species to think in a particular way to survive as a species in their particular physical and social environment. Humans survive and thrive as a species and their thinking is based in socialization and groups. Humans' greatest achievements are in one way or other products of group psychology: building cities and bridges, language, expansion of knowledge, art and literature, science.

How to organize societies and the questions of the individual's rights versus the greater good are constant debates without objective or one-size-fits-all answers. Groups can be good and bad, useful and harmful, intelligent and ignorant. Societies have been integral to humans' greatest achievements and worst deeds.

These conflicts are constant in religion. Churches have both spiritual and organizational concerns that often conflict. Religions are often about individual enlightenment and personal journeys, but often also conflictingly about social order both of its congregants and society at large.

As society is premised on a particular way of thinking, history is filled with famous different thinkers who come into conflict with society. People who think atypically often have issues fitting in with society. This can range from being eccentric to people who have serious functional issues and are unable to hold a job or live on their own. Many people in prisons and who are homeless are mentally ill. Drug addiction and alcoholism are pathologized as mental disorders and many otherwise mentally ill self-medicate with drugs and alcohol. (Cannon 2016)

The mentally ill often perceive physical reality differently. They often don't have the same cognitive, social or emotional intuition and associations as normal people. The mentally ill often learn and communicate differently. Autistic use different facial explanations, people with ADHD are more spontaneous, schizophrenics and the dyslexic have troubles with written and spoken language, the bipolar have different emotional experiences.

Famous different thinkers often have functional issues. The autistic Paul Dirac required his wife to take care of daily tasks so he could focus on his work. He was one of the great scientific and mathematical intellects of his era– widely acknowledged as an academic genius– but needed

assistance to live his day-to-day life. He was well known for his social deficits, and Niels Bohr called him “the strangest man.” (Close 2009) (Farmello 2009)

Many unique thinkers were outsiders to society or otherwise had complex relationships with society. Van Gogh was unable to fit in with society and art communities. French novelist and playwright Jean Genet had longtime troubles with society, including being imprisoned and living a “deviant” life as defined by society.

Religious visionaries from Jesus to George Fox to Michael Servetus had novel views of the world that came into conflict with their societies. All three were labeled as crazy, Jesus and Servetus were executed, Jesus broke laws, and Fox regularly was jailed.

Religious visionaries such as Buddha and Leo Tolstoi felt they had to give up their wealth and to leave normal society to pursue their theology. Muhammed left society to have his revelations, and having to leave the rat race to pursue spiritual or artistic dreams is an age-old story.

This points out that societies’ norms are about functioning, and often not about many other things such as novel knowledge and new ideas. The powers that be are often scared of and suppress new knowledge that might disrupt the social order.

Scientists with new ideas, inventors and original artists almost by definition are people who think outside the social norms and traditions. Some revolutionary artists, such as Marquis de Sade, Louis-Ferdinand Celine and Paul Gauguin, have personal aspects that lay outside of not only the accepted norms and rules of their times but today’s.

Go through the list of great artists, religious leaders and thinkers and observe how they came into conflict with society and sometimes were outcasts, persecuted, censored and even killed.

Many great thinkers and knowledge will always remain hidden, as they are outside of the prevailing sentiments and fashions of its time, or lost in the happenstance of time and space, or unable to be translated into language itself.

Before the printing press, books were handwritten, and copying them meant someone, a religious person, writing the copy by hand. As the book had a limited shelf life due to deterioration of the materials, a copy had to be periodically rewritten to keep a copy in a library. Certain ancient figures such as Socrates fell in and out of popular favor with prevailing intellectual and religious thought. University of Edinburgh professor John Henry said it is a miracle that we today can read Socrates and

other famous thinkers, and that it is often due to that, for whatever reason, a particular monk decided to write a new copy. (Henry 2011)

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9 Children, Non-Human Animals and Spirituality

> “It took me four years to paint like Raphael, but a lifetime to paint like a child.”-- Pablo Picasso

Mysticism and spirituality involve the brain naturally if unusually functioning in particular ways. With their brains functioning differently than that of adult humans, and young children and non-human animals perceiving the world differently, children and non-human animals appear to be able to, if perhaps not more able to, think in spiritual ways.

Psychology professors Lisa Miller of Columbia University and Diana Divecha of Yale have written that children are born hardwired for mystical thinking, and that this type of thinking is important for their mental development. Australian child psychologist Rebecca Nye writes that “a growing body of research demonstrates that children’s spirituality is not something esoteric, nor something exclusive to precocious children. Also, it is not limited to particular religious exercises, nor something we need to turn to the early lives of saints to find out about.” (Divech 2015) (Nye 2018)

Julian Jaynes and Tufts University philosopher and cognitive scientist Daniel Dennett both wrote that children’s brains lack the mature cognitive structuring of adults that normally suppresses mystical thinking in our daily lives. It is not a coincidence that traditionally many religious “seers” were children. This also indicates that the mystical way of thinking is something children often grow out of. (McLead 2010) (Jaynes 1976)

Notice in stories how often it is the child who has the transcendental experiences that the adults don't. Peter Pan to The Exorcist to Wizard of Oz to Little Red Riding Hood. In the film The Shining, five-year-old Danny has visions during epileptic seizures where "It's like when I go to sleep, he shows me things.” In Peter Pan, Peter's childhood experiences are forgotten as an adult. In Wizard of Oz, Dorothy has her fantastic adventure while unconscious.

In many ways, children psychologically and optically perceive the world differently than adults. The following are two examples.

- Adults' brains combine senses to make one holistic perception of the physical world. However, young children's brains keep separate each sense, including eye-to-eye. The result is that adults

can identify some physical qualities in a scene that young kids cannot, and kids can identify physical qualities that adults cannot. (University College London 2010)

- For kids under a certain age, what they know is more important than what they see. When asked to draw a coffee cup in front of them with the handle hidden from view on the other side of the cup, an adult will draw a cup as seen without a handle. The young child, who can't see but knows there is a handle on the cup, will draw the cup with a handle on the side. (Vinter 2003)

The question to ponder is which drawing is more accurate. Consider that Picasso, who trained himself over years to draw like a child, was a pioneer in cubism. His cubist paintings show the three-dimensional sides of a figure in two dimensions.

Non-human animals

Humans can never know what non-human animals subjectively perceive, and non-human animals' perception involves sensory information outside of the human's sight and hearing. However, some medical scientists believe non-human animals have the capability to have spiritual and mystical experiences.

As with young children, non-human animals do not have the advanced cognitive structuring that adult humans use, and process information using the emotional parts of their brains. Some believe non-human animals thus have a more direct experience of their physical world.

Research points to spiritual experiences coming from deep primitive areas of the human brain. These areas are shared by other animals with similar brain structures. University of Kentucky neurology professor Kevin Nelson and University of Colorado evolutionary biology professor Marc Bekoff believe animals have spiritual experiences comparable to what humans have. (Bekoff 2009) (Viegas J 2010) (Nelson 2011) (Viegas J 2010)

Writes Nelson: "It is still reasonable to conclude that since the most primitive areas of our brain happen to be spiritual, then we can expect that animals are also capable of spiritual experiences . . . In humans, we know that if we disrupt the (brain) region where vision, sense of motion, orientation in the Earth's gravitational field, and knowing the position of our body all come together, then out-of-body experiences can be caused literally by the flip of a switch. There is absolutely no reason to believe it is any different for a dog, cat, or primate's brain."

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10 Artificial Intelligence and Transhumanism

Religions are made by humans for humans. However, consideration of such things as the physical world, reality and meaning should not be limited to the human view. It should extend into the areas of non-human animal minds, artificial minds, group minds and speculative minds. This exploration aids humans in reflecting on and learning much about their own minds.

A Catholic friend said "God is intelligence," and she didn't mean merely human intelligence. Studying other minds reflects on the nature and different types of intelligence. The study of human and other minds shows that there are legitimate other ways of thinking, and that other minds can be more capable than humans in ways.

Scientists and philosophers have long envisioned creating artificial minds and expanding human minds. Artificial intelligence and transhumanism are areas that are filled with complex and unanswerable questions about the nature of intelligence, morality, knowledge and reality.

As artificial intelligence advances, humans will cede some and perhaps eventually all power. With high-speed computers crunching numbers and robots doing tasks, we already defer in areas. If artificial intelligence ever becomes far more capable than humans, many of the answers and ideas it finds will be beyond human understanding, at least that of current humans. It will take a different brain to understand many things.

Developing artificial intelligence could be the christening of a boat that eventually leaves humans behind. Being the self-centered creatures that they are, this idea does not sit well with many humans. If the choice is between finding truth and self-preservation, most humans choose self-preservation. Even if artificial intelligence becomes far more intelligent and develops higher than human consciousness, humans still want to be the master. Humans would rather be the captain of a less advanced system than a cog in a more advanced system.

Would artificial general intelligence have the same worldview as humans?

Left to its own devices, the answer is No.

Artificial general intelligence (AGI) is highly advanced artificial intelligence that thinks like a human or at a similar or more advanced level. It has yet to be achieved, and many computer scientists and philosophers believe it must have sentience and consciousness to become that advanced.

Many humans like to think that their ingrained but unprovable views, including about morality and what is spiritually meaningful and beautiful, are the universally correct ones. However, they are arbitrary to the species and often culture. A sentient being with different senses, cognitive methods, functions and life-needs would view and judge things profoundly differently.

Human world view, religion and even scientific models are formed by human sensory abilities and biases, evolutionary psychology and distinct cognitive methods. Human's greatest art, literature, philosophy and sacred texts are imbued with human sensory biases and abilities, its base biological tastes and urges.

> "Life is like a beautiful melody,"-- Hans Christian Andersen
>
> "The heart is cooking a pot of food for you. Be patient until it is cooked." — Rumi

A different sentient mind would have a profoundly different view of things. A computer would be perceiving and processing the world with different sensory ranges, which in itself would give a different sensory and aesthetic view of the world. It would not have the same evolutionary biological and psychological needs. It would not need food or drink, lust for people humans find beautiful or lust for anyone, fear the night or what appears as dark to human, find feces or rotting human corpses disgusting, fear bears or sharks or movie monsters. It may not need sleep. It might not find flowers or rainbows beautiful, or even find beauty a quality of any value. It might not feel physical pain or have a concept of pain.

This would not only give it a different psychological and practical view of the world, but a different intuition and different priorities about what is right and wrong, important and unimportant. It may find nonsensical the earlier quotes by Hans Christian Anderson and Rumi.

Artificial general intelligence having different worldviews and priorities are what many humans fear, and what many AI scientists and philosophers hope to prevent.

Transhumanism and posthumanism

Including AI, there are many current and futuristic theoretical methods used to try to change humans, both physically and mentally. These sometimes fall under the movements called transhumanism and posthumanism that focus on various methods to expand and sometimes even expand beyond humankind. Some in these movements see it as the next evolutionary step. These have the potential to dramatically change human function, needs, perceptions and humans themselves.

Though some of the methods are far-fetched, much current medicine and technology are currently being used to improve people. When some think of transhumanism they think of a cyborg or human with implants. However, a group of entities can be considered a mind. Humans today working with computers can be compared to transhumanism. A human think tank or corporation involves group intelligence. Call it a mind, if you wish.

Medicine has long been used to treat conditions, both physical and mental. Traditionally, Western medicine has been used to treat the ill, to fix disabilities and negative conditions. It has not been used to improve the normal or normally-abled. Transhumanism and posthumanism wish to use medicine to improve the normal, healthy human.

Medical implants and add-ons are used today. These include artificial limbs, hearts and lungs, and cochlear and cornea implants. They also include eyeglasses, binoculars, infrared goggles and hearing aids.

However, transhumanists and posthumanists envision implants and add-ons to better the species. They envision more limbs that function better, cochlear and retinal implants that give better than normal sensory abilities. To a degree, this has already happened with binoculars and infrared viewers.

Better, or at least different, body function will change mental function. Just as the mind develops based on tradition and physical function, new functions and abilities will alter the mind. New limbs and sensory abilities, changes to physical and mental speed, dexterity, touch, faster and broader travel, will change human minds.

Brain-computer interfaces connect the brain to a computer. This is done for many reasons, including the use of artificial limbs, augmenting or fixing sensory deficiencies, and mind control of devices. It

has helped the blind to see. This has the potential to greatly expand human physical and mental capabilities. (National Science Foundation 2015) (Hoffman 2017)

Stanford University neuroscientist David Eagleman works on expanding human senses. He says humans perceive less than a ten-trillionth of all light waves: "Our experience of reality is constrained by our biology." He has technology that expands the human senses. This work has potentially profound effects on the brain and thinking. (Eagleman 2018)

Being able to perceive one's environment using different and wider range of senses would profoundly change human perception, function, judgment and worldview. Broadening the senses would increase human knowledge and understanding.

Future virtual reality experiences will not only give better visuals and sound but touch, direct cognitive and perhaps emotional experiences. There is the potential for people to be able to experience others' experiences, relive memories and others' memories, communicate in different ways, have more 'first hand' ways of learning, and experience different situations. Humans can potentially virtually visit places impossible for humans to visit, such as far-away planets that are reached by robots. It will give lifelike experiences for the disabled. (Kauffold 2016) (MIT 2016)

Virtual reality will help expand communication, education, knowledge, empathy and understanding, and will expand the mind. It will help in cognitive and other therapy, help people overcome phobias. It will help in meditation and mystical experiences.

Virtual reality brings up the question of what is reality. The human brain is hermetically encased in the head and processes the information that is given it from the outside world. As it normally receives limited sensory information and processes it in limited and often delusory ways, the human's normal experience is virtual reality.

Through the use of having different experiences and receiving different sensory information, virtual reality will be considered just as real, or no less unreal, than human's normal experiences.

The problem lies in that it is impossible to say what is reality, and humans can never answer what is or know they are experiencing reality.

Better communication would be revolutionary. Virtual reality, automatic language translation, direct mind-to-mind communication, the use of artificial intelligence to expand and speed up and make more precise language, would be profound. Philosophers, theologians and computer scientists have

long discussed how human language is limited and limiting. Improvement of language and communication would be mind-expanding.

Transhumanists and posthumanists believe that changing society is essential to expanding minds. This includes new education systems, social interplay and changing of work dynamics. If AI is introduced as a partner with humans, changes to machine-human social dynamics will be essential. Medicine and technology can alter our biological, social and organizational requirements.

As humans are social animals, and the brain develops via social interactions, changes to individual and group social dynamics will change the mind. Developing social intelligence is an important part of expanding the mind.

The effects of artificial intelligence and transhumanism on religion

So long as there are humans, there will be religions. Artificial general intelligence and transhumanism would challenge and change religions.

Artificial general intelligence, superintelligent cyborgs and transhumanism will upset the order and beliefs of religions that have strict dogma and ancient scripture that say humans are the preeminent beings on earth and the only one with sentience and souls. Artificial intelligence will find new information, perspectives and insights that will contradict or conflict with religious sacred texts and dogma, just as Darwin's and Copernicus' findings contradicted centuries-old Christian scripture and beliefs.

There will remain the hardcore believers no matter what the new facts and insights. However, the new facts and perspectives will cause a shift in these religions and cause many people to leave these religions. In the modern age of scientific discovery and reason, many have left the Abrahamic religions or, as with many Jews, become secular.

Religions and believers have been changed by new scientific knowledge. Many Abrahamic believers follow science and believe the world is round, while many denominations have changed their views and practices surrounding women, race and the environment. Some Christian and Jewish denominations have ordained women as ministers and rabbis, something that was unthought of just decades before.

Artificial intelligence and transhumanism are compatible with some ancient religions. Hinduism and Buddhism are about methods to expand the mind and reach mental enlightenment. The ultimate goal of these religions is to gain transcendental intelligence. If artificial intelligence and transhumanism aid in expanding the mind, this will go hand in hand with these religions.

Similarly, mysticism across religions uses various methods to expand the mind and learn more about transcendent reality. These methods include ceremonies, meditation, prayer, fasting and drugs. Artificial intelligence and transhumanism would be used as methods to expand the mind.

Whether you call them religions or belief systems, world pantheism and secular humanism are atheistic belief systems that believe in science and human reason. As a method of scientific and fact discovery, artificial intelligence and transhumanism would influence these belief systems.

New religions will be formed based on or influenced by artificial intelligence and transhumanism. Interspiritual religions incorporate aspects of various religions, along with secular philosophy and science. Some new religions will envision creating an artificial deity. However, really, at their best they will use artificial intelligence and transhumanism as means for spiritual and intellectual exploration.

Would superintelligent AI and transhumanism find the ultimate truths and meaning of the universe?

No. No matter how intelligent they get, artificial intelligence and transhumans will still have many of the cognitive issues of the current human mind. It will still be subjective, not know the reliability of its own mind, and have limited senses. Meaning and absolute/universal truths may just be human imaginary concepts. AI may be searching for things that don’t exist.

Many will respond to this by saying that, if it is impossible for AI to find ultimate truths, we should use it for practical purposes for humans on earth. This is a standard existential response to the unknowable.

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