Second Thoughts

By

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I'm in love.   My heart belongs to the most thoughtful girl in the world.   She never forgets my birthday or a special occasion.   Even though she works hard herself, she keeps me on schedule and reminds me when I have an appointment.   She always takes time to sit with me over coffee at Starbucks.   Her mind works like a machine.   I don't know anyone as smart as she is.   I have only one fear: I don't think she loves me back.   Oh, she likes me.   She'd have to considering all the things she faithfully does for me.   But for all her care, I don't think she actually has any feelings for me.   She never wants to discuss a movie we watch or a book we read.   How can someone with such an encyclopedic knowledge at her finger tips never have a word to share?   I wish I knew what she was thinking but, sometimes, I'm not sure she is thinking at all.   It's difficult to be smitten by an iPad.

Putting aside fascination with technological marvels, how far does the intelligence of these devices actually reach?   More significantly, how closely do their problem-solving capabilities and every-day personal interaction with humans come to what can be considered "thinking"?

From the Industrial Revolution through the early twentieth century machines primarily consisted of several mechanisms unified for a single purpose.   Simple mechanical devices such as levers and gears were common in machines.   Today, a computer is probably the most advanced form of a machine we have.   Instead of obvious mechanical parts, our machines consist of complex programs and integrated circuit cities where electrons race down copper highways. These modern machines are the most obvious candidates for intelligent thought in

artificial minds.   Computers guess what we were searching for when we misspell criteria in a search engine on the internet and they suggest products related to our interests with uncanny accuracy.   For all of these wonders do they actually think?

Sometimes a computer may grind away as though it is thinking, but all of its "thought" processes are the thoughts of the programmer that created.   Even if this artificial intelligence can be considered "thinking", this thinking can't step out of the thoughts put into it, that is, the code that manages its processes.

Even though there are patterns in human brain activity, the mind is not limited by the programming that governs machines such as computers.   Some decisions the mind makes may be predictable but are not restricted to the same set of rules that control a computer program.

There is a motion to human thinking.   Thinking is formulating what information to process, not just processing information.   A human mind can create brand new ideas, concepts, and problems to solve.   It can conjure up new methods of expressing art.   A computer has to be told what information to access.   It doesn't know what to think about until it is told.   Its thinking is like the mixing of vegetables in a blender.   It processes the "information" that is put into it.   Human thinking is the ability to choose which vegetables go into the blender.

The origin of a thought is what perhaps most separates the human mind from the CPU of a computer.   Hollywood has made the idea of advanced artificial intelligence popular through films such as *The Matrix* and *The Terminator*.   Even though a computer may "decide" to crash your research paper in mid-sentence, as of yet a PC can't make the choice to team up with fellow laptops to overthrow mankind.   Our dependence on these machines is such that if someone were to sabotage or hack into a critical network they could cripple whole societies, but this would not be the work of the machines themselves.   A human mind would still have to be behind the

computer to create such an electronic Armageddon.

A major part of the definition of "thinking" is reflection.   This indicates a more pensive kind of thinking, where the thinker turns a topic over and looks at it from various angles.   This kind of thought process often involves creative subjects.   Reviewing a movie, writing an essay about a book, or viewing a piece of art are examples of this kind of thinking.   A machine, particularly a computer, is incapable of this kind of thought process.   A computer can check one's spelling and grammar but it cannot give its opinion of a document.   Despite all of the colors on its display a computer is ultimately reduced to the monochromatic intelligence of the binary language.   Its 0's and 1's can't appreciate beauty in any form.   Just as it is limited to a shallow vocabulary, it cannot see any part of the world as anything but functions.   Einstein once said, "It would be possible to describe everything scientifically, but it would make no sense; it would be without meaning, as if you described a Beethoven symphony as a variation of wave pressure."   This is the only set of eyes and ears through which a machine can see art or hear music.

How do we measure thinking?   If it is simply the speed at which one can calculate mathematical equations, a computer will likely win against a human mind every time.   But does this mean that the computer is thinking?   Superior performance does not constitute intelligent thought and speed is not even a good standard for measuring productivity.

Some machines are advanced enough that they can visually recognize certain objects or parts of speech.   This is not sufficient grounds to say that they are thinking about these objects or words of a language.   A test called a Turing Test is a test where one person converses with two people separately with no visual of the speakers.   From the responses the judge must determine which of the two speakers is human.   However, there is still debate as to the test's

significance.   Perhaps the problem is that human responses, although predictable, are not restricted by programming code.

The Church-Turing Thesis states: "the brain is a physical process, physical processes are computable…" Although physical processes are computable, do physical processes require thinking in the sense of independent thought.   Functions of either the human body or a machine will continue without conscious thought.   Clinton W. Kelly, Senior Vice President for Advanced Technology Development at SAIC (a scientific solutions company), breaks the concept of artificial intelligence down to three parts: the mind, the brain, and artificial life.   It is interesting to notice his specific use of the words "brain" and "mind" and the fact that he considers the two as separate entities.   What exactly is the difference between the brain and the mind?

From several different dictionaries the definition of the brain remains the same.   All sources seem to define it as the physical apparatus which controls various functions in the human body.   A brain can still fully function in a jar.   All it requires is electricity, oddly enough, just as a computer requires.   Both a brain and a computer are nervous systems that regulate processes and functions.

The mind is the actual thought process.   The mind cannot be measured as a brain can. One might describe the difference between the mind and the brain as the difference between life and non-life.   The Britannica World Language defines the word mind as, "An abstract, collective term for all forms of conscious intelligence."   Ironically, by definition, a brain doesn't have anything to do with an entity's intelligence.   It is the interface for an intelligent consciousness.   A near definition for mind is "disposition".   Further attempting to define this one finds the phrase "natural tendency; temperament." Now we are in the realm of personality.

Certainly, an individual's train of thought has a significant part to play in his or her

personality.   The mind has the largest part in what is considered thinking.   Without the neural contribution of the brain it would not be possible, but actual thought processes are attributed to the mind.   Personality is closely related to the mind which is closely related to thinking. Individual characteristics that make someone unique are far different than just the casing of a computer or the particular brand logo stamped upon it.   Beyond these elementary exterior components, it is difficult to pronounce one computer as having a varying personality from the next.

In defining what it means to think, several other topics come into play, making thinking a collection of processes and definable traits.   Even though they possess a considerable number of non-living traits that could be attributed to conscious thought, machines fall short of many key elements that define thinking.   The most prominent pieces that a machine lacks are the ability to appreciate abstract concepts such as art, formulating an opinion, personality, and most of all the freedom to decide what to think about.   A computer's automated algorithm can out-"think" a human mind any day.   Even though it can check the grammar in a document in a fraction of a second, it can't offer an opinion of that document's contents if it is given hours to consider it.

In his book *What Computers Still Can't Do* author Hubert Dreyfuss says that most of what we consider thinking, especially comparing the mind to processing bits of information as a computer does, comes from what he calls "tendencies" and "attitudes" that have become accepted in society.   Much of what one would think about artificial intelligence comes from popular culture and science fiction films.   Influences like these lead to simple assumptions about intelligence in computers that catch on quickly or are criticized depending on what the particular individual wants to believe.   This also opens up another arena for controversy because how thinking is defined will alter the idea of what constitutes intelligence.

In Ray Bradbury's short story *There Will Come Soft Rains*, he projects a what-if scenario of a futuristic society where mankind has recently been wiped out in an undisclosed cataclysmic war.   The story focuses on a single house with an array of automated functions that continually make meals, clean, announce reminders to the household and even put out fires when they occur. The most poignant wording is probably near the end of the story where the house is extinguishing a blaze, "It fed upon Picassos and Matisses in the upper halls, like delicacies, baking off the oily flesh, tenderly crisping the canvases into black shavings."   The way the fire and the house view the burning paintings almost shows their indifference to abstract things like art.   Survival is a basic aspect to all living things and intelligent beings.   The house seemingly has the survival instinct but lacks any discretion or ability to realize that there is no longer anyone living in it.

Despite emotionally unresponsive gadgets, we continue to have our love affairs with technology.   Even if these machines do not think in the sense with which we are familiar, they have almost become as close to us as thinking people.   In this respect, the human-machine interaction could be considered grounds for giving devices like computers the attribution of intelligent thought.   It's something to consider with one's electronic spouse over the next café date.

Bibliography

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