Do Robots Think Like We Do?

di Paul O'Hara

It is popular nowadays in many science fiction books and films to depict androids and robots as almost human and in some cases better than humans. This article makes the case that androids and robots are always machines and as such can never become human no matter how much they are made to assimilate human characteristics.

A few years ago, Hollywood released a movie entitled "Her" about a man who falls in love with his computer. The idea is not new. Already back in 1959 in an episode of *The Twilight Zone* entitled "The Lonely," we are introduced to the story of a prisoner who is condemned to live a solitary life on a distant planet. Once a year, a supply ship arrives to see if he is still alive and to supply him with the minimum necessary for survival on the planet. After, many years, he is granted a concession. He is given a "female" robot as a companion, which he can program. Indeed, when the supply ship returns a year later with the good news that his sentence has been commuted and he is now free to leave the planet, he refuses to go without his robot. He has fallen in love with "her."

More and more science fiction movies have personified robots and computers. There is HAL in "2001 a Space Odyssey" (1968), there is the android "Data" in "Star Trek (the Next Generation)," and numerous robots and androids in "Star Wars," all of whom have the characteristics of being human or at least being "humanlike." There is a fascination with what makes us human and yet a very limited understanding as to what this means.

Many people, although recognizing that androids and computers as they currently exist are not humanoids, nevertheless expect that in-the-not-too distant future they will become so. For example, if we have Cortana on our computer or cell phone, we can ask her simple questions like, "Who are you?, What is your name?, How old are you?" But although we might find this amusing, it would not take more than a couple of questions to realize that Cortana is merely a computer program and very far from being human. Nadine is a step up. Recently Prof. Nadia Thalman from the University of Singapore designed a robot "in her image and likeness." She is a big hit on the internet and can be found on YouTube. However, again it does not take more than a few questions to realize that "she" is not human. Appearances cannot fool us. There are also robots like Sophia and Mark 1 who emulate pretty young women who do not claim to be human but do want to be our friends. Indeed, Sophia was granted full citizenship of Saudi Arabia on October 25, 2017.

The purpose of this paper is to suggest that it is naïve to believe that robots really can think and function like us. Their way of "thinking" fails to come to grips with the Big Mystery which is each one of us. The real issue is what does it mean to be human? It is one thing to affirm that machines can emulate us; it is quite another to say they are human. Indeed, this is the crux of the matter. How can machines made in our image and likeness be considered equivalent to human beings who are made in the image and likeness of God?

The Turing Test: Alan Turing was a British mathematician famous for his development of coding theory and computers, who made a major contribution to de-

ciphering the "enigma machine" during World war II. Indeed, in 2014 Hollywood released a film entitled "The Imitation Game" describing and romanticizing his achievements and exploits. Turing, anticipating the future developments of artificial intelligence, was one of the first to pose the question in a realistic way as to what it means for machines to think. His 1950 paper[1] on the subject published while he was a professor at the University of Manchester begins with the sentence, ‹‹I propose to consider the question, 'Can machines think?'››. However, because "thinking" is difficult to define, Turing chooses to ‹‹replace the question by another, which is closely related to it and is expressed in relatively unambiguous words ››. Turing's new question is: ‹‹Are there imaginable digital computers which would do well in the *imitation game*?››[2]. The words *imitation game* are a pseudonym for what we nowadays call the Turing test and it is explained below.

Turing being aware that people would build machines to more and more simulate human behavior, formulated a test based on language to discern how effective this simulation could be. The test was simple; if a person in speaking with a human and a machine, both of which are hidden behind a screen, cannot after a series of questions distinguish the human being from the machine then this means that the computer has successfully imitated a human. This has become known as the Turing test. There are many variations on the Turing test, all distinguished by the type of questions that are asked. Let's consider how this test can be applied in certain contexts.

For example, if a grandmaster and a computer were to play a game of chess, could we distinguish the machine from the person based on how they play? Indeed, such a game has already been done. In 1997 IBM's Deep Blue and the Russian Gary Kasparov played a series of six chess games. Deep Blue won with a score of 3.5 to 2.5. Can we therefore say that the computer thinks like a human being? Firstly, it should be noted that the match was played over a period of more than a week from May 3-11. Kasparov, being human, could not have played chess without interruption during that period. He needed to rest, to dine, to go to the restroom. The computer did not. Secondly, Deep Blue performed 200 million calculations a second to determine each successive move. Kasparov would not have been capable of that. He played chess based on his mastery of the game which involved an ongoing interaction between his (human) memory and his insights. Deep Blue did not have insights, its decision-making process was based strictly on mathematical algorithms. While Kasparov might have envied Deep Blue's ‹‹superior intelligence››,[3]

1 - A. Turing, *Computing Machinery and Intelligence*, Mind 59, (ns 238), 1950.

2 - Wikipedia, *The Turing Test*, 2017.

3 - *Did a Computer Bug Help Deep Blue Beat Kasparov*, www.wired.com/2012/deep-blue-computer-bug/

Deep Blue did not envy or experience any emotion in playing Kasparov. Indeed, it was not conscious of its own success. Nevertheless, if we were to be shown only the series of chess responses,[4] we would be unable to distinguish the human from the machine. One might be tempted to say that when it comes to chess the machine can imitate a human but could we not also have said that the human imitated the machine? Indeed, does not the very fact that we try to make a machine in our image and likeness and not vice-versa indicate that there is something special in humans that transcends mere mathematical algorithms?

A second example worth considering is the story of Eugene Goostman from Odessa, Ukraine. During a five-minute conversation in June 2014 that consisted of him asking and answering questions, he convinced 30% of his audience that he was a thirteen-year-old boy. Instead he was a robot. On reading a transcript of a conversation between Eugene and Doug Aamoth from Time Magazine,[5] what is striking is that the more one veers away from some pre-programmed responses to standard questions, the more the conversation seems confusing if not downright meaningless. The humans doing the inquiring were asked to decide whether or not Eugene was a robot or a thirteen-year-old boy and non-native English speaker. Indeed, the obscure parts of the conversation could be equally attributed to the fact that English was Eugene's second language and he had difficulty comprehending it. Regardless, the conversation lasted only five minutes, and one might wager that with a right series of questions outside of the competency of Eugene's programmer, it would not have taken long to realize he was not human. The simple question, "Can I take you out for an ice-cream?" might easily have caused the confusion to melt away. The other big difference was that Eugene was a purely mechanical device, operating according to mathematical algorithms. One doubts if he could have grieved the loss of a loved one because, in fact, he was incapable of loving.

The above question about ice-cream should not be taken lightly. It confronts us with the novelty of our humanity. Not only do we have a taste for food, but we also have taste for art and music. We feel pleasure and pain. We can be happy or sad. We can be elated or depressed. We live with a sense of incompleteness that constantly pushes us to transcend ourselves. And more than anything else, we are

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4 - This game was played on May 3, 1997.
Kasparov–Deep Blue1.Nf3 d5 2.g3 Bg4 3.b3 Nd7 4.Bb2 e6 5.Bg2 Ngf6 6.0-0 c6 7.d3 Bd6 8.Nbd2 0-0 9.h3 Bh5 10.e3 h6 11.Qe1 Qa5 12.a3 Bc7 13.Nh4 g5 14.Nhf3 e5 15.e4 Rfe8 16.Nh2 Qb6 17.Qc1 a5 18.Re1 Bd6 19.Ndf1 dxe4 20.dxe4 Bc5 21.Ne3 Rad8 22.Nhf1 g4 23.hxg4 Nxg4 24.f3 Nxe3 25.Nxe3 Be7 26.Kh1 Bg5 27.Re2 a4 28.b4 f5 29.exf5 e4 30.f4 Bxe2 31.fxg5 Ne5 32.g6 Bf3 33.Bc3 Qb5 34.Qf1 Qxf1+ 35.Rxf1 h5 36.Kg1 Kf8 37.Bh3 b5 38.Kf2 Kg7 39.g4 Kh6 40.Rg1 hxg4 41.Bxg4 Bxg4 42.Nxg4+ Nxg4+ 43.Rxg4 Rd5 44.f6 Rd1 45.g7 1–0

5 - D. Aamoth, *time.com/2847900/eugene-goostman-turing-test/*

self-conscious and seek meaning to our existence. It is precisely in this quest for meaning that the divide between robots and humans is unbounded. Falling in love is more than something accessible to mathematical algorithms, and another-worldly falling in love requires God's grace which is mediated by faith and hope, something that can never be programmed. St. Iranaeus once said that the glory of God is man/woman fully alive[6] (‹‹Gloria Dei est vivens homo››). It takes our breath away and goes to the core of what it means to be human. Let us examine this in more depth.

Who Are We: Cats and dogs can be our pets and may even be the object of our love, but cats and dogs are not humans; otherwise we would not be allowed to keep them on a leash and deprive them of an education. Moreover, animal knowing is not human knowing. Dogs when they awake respond immediately to what they perceive through their senses and feelings. We too are capable of the same. When we awake we may feel the need to use the restroom or to eat but unlike an animal, we may also rejoice in the beauty of our surroundings and the warmth of the sun on our face. Animal knowing is about perceiving and we are capable of it too. Robots too have sensors, but it is not at all clear what it would mean to say that robots perceive. Perceiving is a conscious act that involves ordering and selecting data of our senses, of our feelings and emotions.[7] That perceiving is mediated by desires which have ends. If we feel hungry, we usually desire to eat and seek food. Hunger is triggered by biochemical mechanisms. We as humans might also focus on the beauty (or ugliness) of our surroundings, or on the presence of someone we love. We are capable of distinguishing someone's voice in the crowd, and the footsteps of the one we love. And, although our hearing is attuned to all sounds, yet we always pick out and focus on those of interest or which we consider special. Robots with their sensors can, like a microphone, record all the sounds around them. They can also be programmed to isolate certain sounds whose wavelengths fall within certain parameters. They can be programmed for voice recognition. However, there is a difference. Their selection process requires mathematical algorithms and is limited by the program. They can be programmed to recognize their maker (or master) but they cannot isolate and distinguish specific sounds without having been pre-programmed to do so. They can be programmed to record and recognize certain situations of danger or of interest (to the programmer) but cannot show the spontaneity of someone who has fallen in love for the first time. In fact,

6 - M. A. Donovan, *Alive to the Glory of God: A Key Insight in St. Ireaneus*, «Theological Studies», 49 (1988), p. 283.

7 - P. O'Hara, *The Eye of the Beholder: An Analysis of Perception*, in «Sophia» VIII (2016-2), pp. 127-141.

they sense but do not perceive in any conscious way. Precisely because cats and dogs act and behave based merely on sensing and perceiving but not in accordance with mathematical algorithms, it is harder to program a robot to emulate a dog than to emulate human (mathematical) intelligence. Indeed, a computer could easily be programmed to play chess (although not strictly as a human) but not to play like a kitten which (spontaneously) chases its own tale.

Full Human Knowing: Bernard Lonergan in his famous book *Insight, A Study of Human Understanding*[8] begins with the story of Archimedes who is posed a question by his king. He wanted to be sure that the crown that he had had made was of gold and asked Archimedes to verify if it were so. Archimedes did not immediately have an answer or a method for discerning if the gold was pure or not. However, as he continued to inquire and think about the problem, unexpectedly he had a *eureka* moment. In an instant, as he relaxed in his bath, he understood that the weight of the displaced water was equal to the apparent loss of weight of his body, and that the same rule applied to all submerged objects. He discovered the law of specific gravity. Later he formulated his findings into a definite principle of physics, which nowadays can be learned quickly by anyone without having to retrace Archimedes' original steps. Moreover, one can only surmise that after he obtained his insight, Archimedes did not immediately go to the king but instead checked and rechecked his results empirically to be sure his understanding was correct.

His insight and method of finding the specific gravity of an object have been passed down through the centuries and confirmed by many students of physics during laboratory work. Moreover, even if not all students fully grasped the depth of Archimedes discovery, almost all can be trained mechanically to calculate it: First weigh the object in air, then in water and then calculate the ratio of the two;[9] the resulting value is called the specific gravity of the substance.

When we compare our human approach with that of a robot and computer, we begin to see a fundamental difference between human reasoning and artificial intelligence. Computers and robots do not have insights. There are no *eureka* moments for a machine (or indeed for a dog). The machine uses mathematical algorithms to compute the specific gravity but never has an insight. It is not conscious and will never have a flash of genius as did Archimedes. Moreover, in the case of humans who do not understand the principle of specific gravity, and who nevertheless learn to perform the experiment and derive the specific gravity in a mechanical way, almost as if they are emulating the machine, there is a difference. The person

8 - B. Lonergan, *Insight – A Study of Human Understanding*, Darton, Longman and Todd, London 1957.

9 - The ratio is defined to be the weight of the object in water/the weight of the object in air.

will usually have some type of emotional attachment to what he or she is doing. He or she may have his or her (common sense) reasons for doing it. He or she might need to pass an exam, or his or her job might depend upon it. Also, feelings and emotions can be involved. A person might enjoy doing it or might be bored or indifferent. Computers in contrast will complete the task without any real emotions[10] or motivation and will do so a lot faster than humans. In other words, both are capable of calculation, but their approaches are very different.

Reflective Insights: There is also another component to human reason that is substantially different from that of a robot or a computer. After, we have an insight, we spontaneously wonder if we got it correct?[11] Archimedes insight was correct, but it is hard to imagine that he did not first check it to see if it worked. Similarly, Kepler's laws for planetary motion served as a confirmation that Newton's law of gravity were also correct. On the other hand, if we turn to the social sciences, the process of confirmation is much more difficult and nuanced. Augustine Comte, the father of positivism, was convinced that objectivity corresponded only to the use of mathematical methods and measurements. He abolished any question related to meaning as merely subjective and not worthy of consideration.[12] What Comte overlooked was that "objectivity is simply the consequence of authentic subjectivity"[13] which can only be discovered if there is an inner quest for meaning. Comte essentially denied us our humanity and founded a science on principles that could not themselves be formulated mathematically but rather reflected his own biases and prejudices. His philosophical principles were not objective by his own standards and indeed contradicted them.

Robots and computers in contrast to humans are not on a quest for meaning. A question seeking meaning is meaningless to a computer, while any human who is spiritually awake even minimally grasps it, although he or she may not have an answer. Correlated to the quest for meaning is the reflective question that asks if something is true or not? It is a question that no computer can meaningfully ask while for humans it can become the most important question of their lives, especially as they grow spiritually.

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10 - Robots like Nadine, Sophia and Mark1 have already been programmed to emulate some emotions and human facial expressions. It is one thing to emulate and quite another to spontaneously exhibit true emotions and the infinite variations thereof associated with authentic human subjectivity.

11 - B. Lonergan, *Insight – A Study of Human Understanding*, chap. X.

12 - E. Voegelin, *Science, Politics and Gnosticism*, Gateway Edition, Chicago 1968, p. 26.

13 - B. Lonergan, *Method in Theology*, Darton, Longman & Todd, London 1971, p. 265.

To further appreciate the significance of the reflexive question, let us consider the structure of a hypothetical syllogism. It can be expressed in logical form as: If A is true then B is true, A is true therefore B is true. In mathematical language, the word true is reduced to mere symbols: If A then B, A therefore B. The solution to Archimedes question implicitly presupposes a form of syllogism: If an object has a specific gravity of 19.82 then it is probably made of gold. The King's crown had a specific gravity of xx, therefore it probably is or is not gold accordingly.

The syllogism is a form of logical reasoning and consequently a computer can be programmed to answer yes or no in accordance with this logical structure. However, there is a difference between it and the pure human reflective question. The logical form that constitutes a syllogism cannot be itself validated by another syllogism. Logical rules cannot be explained logically; rather they derive their validity from a reflexive insight. The truth of the matter is a matter of truth, but the truth of mathematical logic is not the logic of truth. One should be reminded of Pascal's observation[14] that ‹‹the heart has its reason which reason does not know››. In this context, a computer can be programmed to obey a syllogism. However, it is one thing to answer "Yes" or "No" in response to a syllogism but quite another to affirm the true meaning of the "Yes" and "No." Consider the classical example:

> All men are mortal
> Socrates is a man
> Therefore, Socrates is mortal.

Written in this form it is innocuous, and no one is going to disagree with it. Each sentence contains information which needs to be affirmed and each affirmation opens us to a different level of meaning. Do all men really die? It seems so since we have no evidence to suggest otherwise. Experience has taught us that sooner or later we all die. However, the computer does not have any experience of this. It knows of it only if it has been stored in its memory by a programmer. For a computer, the statement is equivalent to a mere utterance void of meaning while for a human, it brings to the fore the thought of death. For a person, the underlying implications are huge and lie in stark contrast to the machine's utterance. It involves a quest for meaning while for a computer it is a meaningless phrase which it recites mechanically from memory. For a person, the statement can be biologically, psychologically, philosophically and theologically meaningful in a way that no computer could ever be programmed to grasp, A human who is fully alive seeks self-transcendence while a machine seeks nothing.

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14 - B. Pascal, *Pensées*, www.gutenberg.org/files/18269/18269-h/18269-h.htm, Fragment 277.

The discussion about death and its meaning highlights one of the elements that can be overlooked if syllogisms are applied without thinking. At the other end of the spectrum are the use of frivolous syllogisms that have no meaning and yet are confounding for a machine. Consider the following:

> All statements are false
> One plus one equals two is a statement
> Therefore, it is false.

From a human perspective, such a use of the syllogism is meaningless. It violates the principle of contradiction. On the other hand, unless the robot is programmed to exclude such self-contradictory statements it will affirm the false as true. The above is very subtle but captures the essence of the problem. The principles of logic (the structure of syllogisms, excluded middle, principle of contradiction) are true not because they can be deduced or derived by logic but because our human cognitional structure is hard-wired, in the sense that we are configured to function in this way. They take on meaning when they are rooted in authentic subjectivity, otherwise they have no meaning or only the meaning of someone playing a game. We are not justified in using reason to reject reason and consequently the structure of the syllogism is contextually true if the first two statements are true and reflect this authenticity. Computers and robots arrive at so called "truth statements" only to the extent that that have been programmed (by their master) to conform to rules of logic and human reason. However, the human hard-wiredness functions on a self-transcendent level grounded in a quest for meaning and not merely on the level of computer neural networks. There is an abyss between the human person and the machine, an infinite gap that cannot be crossed even with a quantum leap.

Explanatory Higher Viewpoints: That the whole is more the than the sum of the parts is a principle that seems to date back to Aristotle.[15] We have noticed above that human reason transcends machine learning. Dogs and cats have conscious experience but never transcend the experience to have insights. An insight is more than the myriads of sensations and perceptions that flood the brain in an orderly and selective way. Indeed, it is the bond that brings us from ignorance to understanding. What can be perceived as myriads of sensations and feelings can be understood in a single insight. Archimedes ongoing perceiving of the crown's color and weight, touch and smell in and out of water, coupled with Archimedes hours of

15 - Aristotle, *Metaphysics*, London, Everyman's Library, Book Z, XI, p. 195: *Why the definition of a whole sometimes includes that of its parts and sometimes does not.* p. 218, VI: Chap VI, *The unity of definition: All wholes which are not mere aggregates, i.e. must have a principle of unity.*

thinking and inquiring about gold and matter while working and relaxing, in an instant passes from ignorance to understanding, from percepts to a mathematical law, which expresses a lot more than the sum of all the experiences of wonder and perceptions that preceded the act of insight.

In a similar way water is more than the sum of its parts. By themselves, two atoms of hydrogen and one of oxygen do not constitute a water molecule but nevertheless if the right combination of interactions and chemical laws take place and a spark is added to a gas mixture of hydrogen and oxygen a quantum leap takes place and water emerges. Components by themselves do not constitute a thing. We also need to consider the laws of architecture. A lawn full of bricks strewn everywhere is not a garage or a house or anything else but simply a random aggregate of objects, a non-systematic random distribution of bricks. However, when they are incorporated into a building according to the architect's plan, the randomness disappears (or at least is not immediately apparent) and a new systematic organized structure emerges.

Nature too when passing from physics to chemistry, from physics and chemistry to cell biology, from physics chemistry and biology to multi-celled biology, from physics chemistry biology and multi-celled biology to sentient beings undergoes many levels and layers of ordering and reordering which offer multiple perspectives and viewpoints, which are not all equal. What is systematic on the level of chemistry may be considered purely coincidental from the perspective of physics. Moreover, without the laws of biology, a cell may be only considered as an entity defined by millions of bio-chemical reactions which can be classified by probability distributions. Biochemically the cell is nothing more than a mere aggregate of non-systematic chemical reactions. For example, if we consider a computer or robot that is capable of completely analyzing chemical reactions and present it with a rose, then the rose would be classified only by its billions of bio-chemical reactions. Conversely, if we present a computer only with millions of biochemical reactions and ask what is it, the robot will state that it is a rose only if pre-programmed to do so and even then, it could be wrong. It is possible in principle that all the bio-chemical reactions occurred in a test tube. There would be no moment when the computer would identify these myriads of interactions as constituting a rose. Indeed, if it did recognize a rose it would mean that it has been programmed to call a certain quantity of a certain type of bio-chemical reactions a rose, based on what has been stored in its memory. On the other hand, a normal human would simply have to smell, look and hold the object to know that he or she is seeing a rose. Moreover, are we speaking of a living rose on a bush or a dying rose that has been freshly plucked and lying in our hand? The person would know this at a glance from common sense but not the computer.

The whole is more than the sum of its parts and yet we grasp this «unity, identity, whole in data»[16] quite spontaneously in a way that cannot be subsumed under merely mathematical algorithms. It reminds us once again of the difference in chess playing between Kaspersky and Deep Blue. The conclusion might be the same, but the methods and the aesthetics are galaxies apart. No amount of biochemical analysis can ever substitute for the transcendent experience of the undefined rose that we hold in our hand. Machines do not have feelings, common sense, insights, consciousness and a quest for meaning that in anyway simulates being human. Efficiency in mathematical computations and probability calculations falls way short of the mark and will always be so because the beauty of the rose transcends all chemistry.

All living things manifest a hierarchy of the physical, chemical and biological horizons of existence. In contrast, a robot is a machine subjected only to the laws of physics. If future robots are built to incorporate biological laws (and not just to mimic their characteristics with programs) then that, although a huge step forward, would still be a huge step from saying it is human. Replacing machine parts with some biological parts does not evade the essential question of what it means to be a human, who in addition to being subjected to biological laws seeks self-transcendence. Indeed, we are a big mystery first and foremost to ourselves, even if in some cases our conception has been in a petri dish. For Alan Turing, it was meaningless to ask if a computer could think like a human, since human thinking could not even be defined. The idea that a machine could be human has no sense, because if something is human then by its very nature it is not a machine. A machine is a programmable device while the human is a self-transcendent creature in a way that no machine could ever be.

The Big Mystery: So, who are we? Our inquiry has brought us full circle back to ourselves. We are creatures who are on a quest for meaning, functioning on the level of common sense, scientific analysis, interiority and responsibility. In this quest, there are essentially two approaches. The first is that of Jacques Monod who sees us as having emerged by accident according to the rules of the cosmic roulette game[17] implicit in Darwinian (or Lamarkian) natural selection. The second is that of Pope John-Paul II who sees evolution as «more than a hypothesis»[18] and

16 - B. Lonergan, *Insight*, op. cit., p. 246.

17 - J. Monod, *Il Caso e La Necessità*, Mondadori, Milano 1971, p. 118: «Il nostro numero è uscito alla roulette»; *ibid.* p. 143: «l'uomo finalmente sa di essere solo nell'immensità indifferente dell'Universo da cui emerse per caso».

18 - Pope John Paul II, *Message to the Pontifical Academy of Sciences: on Evolution*, 4.

its laws as part of the natural order created by God but in addition he also sees humans as ‹‹collaborators›› with God within history which is destined to break forth into the new heavens and the new earth of the apocalypse at the end of time.[19] Moreover, given the unique role of human beings as co-creators means that we are indeed metaphorically speaking at the center of the universe. The emergence of humans requires not only natural selection but also a direct involvement of God. If, as the Bible says, we are made in the image and likeness of God (and this too is a great mystery) then the initiative and prerogative could only come from God. We did not create ourselves. We are so to speak a second big bang, comparable if not greater than the original big bang of creation that began physically at time 0. In contrast robots are and always will be made in our image and likeness but never in the image and likeness of God.

It is within this context that we can understand the phrase of Saint Augustine that the heart of man is made for God and cannot rest until it finds him,[20] or the expression of Pascal already quoted above. In the world of Jacques Monod not only did our number come up by accident in the cosmic roulette game but we are, consequently, to use the words of Walker Percy "Lost in the Cosmos".[21] In the vision of Pope John-Paul II, on the other hand, we live and are guided by faith.[22] The post-modern revolution that is currently taking place throughout the world and especially in Europe is a reminder that the past has gone and that something new is emerging. It is a reminder that the age of pure reason has been shipwrecked on the rock of modernity and that it can only be rescued and salvaged by faith. Otherwise, we remain lost in the cosmic sea. Faith and reason, faith seeking reason (‹‹Fides quaerens intellectum››) and the pain that goes with it, is at the heart of the human quest and search for authenticity. It is a quest that cannot be programmed in a robot. It takes a divine spark.

Breakdown and suffering: Before bringing this essay to an end there is one other factor that needs to be considered, namely the role of suffering, of sin and of death as part of the human identity. For many people, the world of suffering is meaningless. It is a sign of the incompleteness of evolution and of its numerous false starts. If our number came up by accident then not surprisingly things also go wrong by accident and only after many attempts, over-and-over again, do we even-

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19 - Pope John Paul II, *Laborem Exercens*, 27.

20 - Saint Augustine, *The Confessions*, New City Press, New York 1997, p. 14 (1): ‹‹You have made us and drawn us to yourself, and our heart is unquiet until it rests in you››.

21 - W. Percy, *Lost in the Cosmos*, Farrar, Strauss & Giroux, New York 1983.

22 - John Paul II, *Fides et Ratio*.

tually get it right. This at least, unless one is a total nihilist, defines the great hope inherent in Darwinism, although ironically, strict Darwinism does not allow one to hope because it maintains there is only an efficient but no final cause. We may deny the order of being, but we cannot change it. Indeed, where sin and death abound, hope abounds even further, as scripture points out. Christians see in pain and suffering not mere trial and error, not mere breakdown but the very means that God has used to redeem us and transform each one of us and all the cosmos into a new heaven and a new earth. The resurrection will not take place in spite of us, but precisely because of us. Our sin, pain and suffering are the catalyst for a new world. This expresses the Christian understanding and to the extent that we grasp it, we realize that to suggest that robots can think like we do is absurd. A machine can emulate very successfully some of our higher cognitional processes, doing so in a far better way. It can play chess, do a scientific analysis based on mathematical algorithms, help us get to the moon and maybe even the distant stars, emulate some emotions. However, emulation does not mean that ontologically it possesses such qualities. The robot is not conscious and so can never actually have emotions no more than a tree can have an emotion. The gap between the human and the machine cannot be significantly narrowed and essentially is infinite. A robot even if it were to pass the Turing test (and I personally doubt that it can) would still be a machine, in that it is not conscious and certainly not self-conscious. When it responds to questions pertaining to consciousness (as for example using Cortana) the responses are based on word recognition and recordings synthesized by the programmer. The cleverer the response, the cleverer the human programmer. However, the bottom line remains that the robot is not and cannot be conscious in any human sense. There is no awareness within its cognitional acts. It is not capable of self-transcendence and in the end, it is not capable of an existential crisis stemming from a quest for meaning.

To conclude, we can say that robots will become more and more sophisticated with time, emulating more and more some of our cognitional processes and seemingly more perfect than us in some things but at the same time, it will also become apparent to anyone with the minimum of spiritual awareness that robots are not human and can never be.

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