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Technological developments often determine the way humans, at least, human bodies, are viewed. In Descartes' and la Mettrie's times, the human body was likened to a mechanical device with pneumatic components and thus could be analyzed in terms of gears, levers, pipes, etc. The age of electricity brought an electrical view of man, even of human life, and numerous experiments were intended to confirm that electrical impulses could at least make corpses react like living beings. Today, in the age of computers, the digital view prevails, suggesting that human beings are not much more than software run on carbon-based hardware and, just like in the case of computers, the software can be separated from the hardware. This leads to the view of uploading the mind to a computer and, consequently, to the idea of personal immortality. In this article, I would like to look at the feasibility of such a claim on its own terms.

Most of the time, it seems that the proponents of the software-hardware view of humanity are materialists: There is only one type of substance,

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material, and if there is any spirituality involved, it is the result of the interplay of material bases. Interestingly, these proponents eschew the designation of materialism and opt for other denominations. For example, Moravec states that he is partial to physical fundamentalism, which is a view that "physical science … [is] the only legitimate claimant to the title of true knowledge" (R 191).[1] In a similar vein, Kurzweil writes, "rather than a materialist, I would prefer to consider myself a 'patternist.'"[2] In their view, "other belief systems… are just made-up stories" (191) and, if God and spirit "affect and interact with the material world, then why not consider them part of it?"[3] It is therefore justifiable to consider them to be materialists.

The chances for immortality might be expected from the progress of genetic engineering, which will hopefully enhance the bodily makeup of humans indefinitely. It may be even better to begin with humans designed to assure immortality. In Moravec's view, "successive generations of human beings could be designed by mathematics, computer simulations, and experimentation, like airplanes, computers, and robots are now" (M 108). However, the makeup of the human bodies is very inflexible and requires a very narrowly defined environment to survive. What if a cosmic catastrophe endangered the earth with destruction? What if the earth became overpopulated and exodus to other parts of the universe were required? (101). Also, the slow speed of neurons significantly limits the degree to which we can boost

[1] The following references will be used:

A – Ray Kurzweil, *The age of spiritual machines: when computers exceed human intelligence*, New York: Viking 1999.

M – Hans Moravec, *Mind children: the future of robot and human intelligence*, Cambridge: Harvard University Press 1988.

R – Hans Moravec, *Robot: mere machine to transcendent mind*, New York: Oxford University Press 1999.

S – Ray Kurzweil, *The singularity is near: when humans transcend biology*, New York: Viking 2005.

For all his scientific fundamentalism, it is interesting to see how many times, by his own admission, his ideas are results of mere speculation (M 50, 74, 116, 136; R 86, 124, 142, 164) or guessing (M 24, 94; R 147) motivated by amusing himself (M 94) and by self-indulgence (179).

[2] R. Kurzweil, *The material world*, [in:] J.W. Richards (ed.), *Are we spiritual machines? Ray Kurzweil vs. the critics of strong AI*, Seattle: Discovery Institute 2002, p. 211; S 5, 386, 388.

[3] R. Kurzweil, *The material world*, p. 218.

human intelligence. In the prospect of developing truly intelligent robots, clinging to the human body would reduce humans to a "second-rate kind of robot" constrained by their DNA makeup. Only "human chauvinists" would be foolish enough to cling to the human body (108; also quoted approvingly by Kurzweil (A 136)). Therefore, the only option left is transplantation of the human mind to a computer. Clearly relishing in the ghoulish details of such a transfer, Moravec describes a possible process of accomplishing it by systematic scanning and destroying the brain to generate a replica of the brain in the form of a program (M 109–110), although he allows for the possibility of accomplishing such a transfer through a noninvasive scanning, without actually killing the person (110). The thrust of the process is the scanning of the brain and the recording of its molecular structure in digital form (or in its hybrid form, digital and analog) in a computer. The generated program is considered to be the mind of the person just killed by the immortalization procedure; after all, "mind is entirely the consequence of interacting matter" (119). "The entire program can be copied into similar machines, resulting in two or more thinking, feeling versions of you. You may choose to move your mind from one computer to another that is more technically advanced or better suited to a new environment. The program can also be copied to a future equivalent of magnetic tape. Then, if the machine you inhabit is fatally clobbered, the tape can be read into a blank computer, resulting in another you minus your experiences since the copy. With widely enough dispersed copies, your permanent death would be highly unlikely" (112). It does not stop there. "As a computer program, your mind can travel over information channels, for instance encoded as a laser message beamed between planets. If you found life on a neutron star and wished to make a field trip, you might devise a way to build a robot there of neutron stuff, then transmit your mind to it." This would result in "two separate versions of you, with different memories for the trip interval" (114), which could be rectified by merging these memories into one (115). On a similar note, Kurzweil states that perpetuation of the human mind is accomplished by uploading it to the computer: "As we cross the divide to instantiate ourselves into our computational technology, our identity will be based on our evolving mind file. We will be software, not hardware [...]. As software, our mortality will no longer be dependent on the survival of the computing circuitry [...] [as] we periodically port ourselves to the latest, evermore capable 'personal' computer [...] Our immortality will be a matter of being sufficiently careful

to make frequent backups" (A 129; S 325; there is a timeline for this event: "there won't be mortality by the end of the twenty-first century" (A 128); at that time, "life expectancy is no longer a viable term in relation to intelligent beings," be it humans or computers (280)). Thus, we should be certain that in the future, "we will be able to live as long as we want" (S 9, 330).

However, in this scenario, the problem of personal identity becomes particularly acute. Is the copy of my mind in the computer really me or is it another being that thinks exactly like me? What if there are multiple copies of my mind in different places? Are they all me? Moravec valiantly attacks the problem by saying, yes, all these copies are really me since it is not the continuation of the *substance* of the mind that constitutes personal identity, but the continuation of the *pattern* of the mind: "pattern-identity defines the essence of the person" (M 117, 119, 121). This allows him to state oxymoronically, that *two* copies of the same pattern are *one* and the same person (119). Kurzweil seconds this by stating that personal identity is defined in terms of "the patterns of matter and energy that are semipermanent (that is, changing only gradually)" (A 54–55, 126) and that this "identity is preserved through continuity of the pattern of information that makes us us"; and thus, in his view, a copy of you "is not you – it *is* you. It is just that there are now two of you,"[4] i.e., *two* (or a hundred) copies of one pattern make *one* person.

However, even in the case of noninvasive scanning, the uploaded mind would have to admit that it would not exist without the original mind in the original body still standing in the scanning room (cf. A 126). On the other hand, political authorities could make a decision that the original mind still encased in the carbon-based body should be destroyed to recycle this body. Would it not amount to an outright killing of the human person, and could it be expected that this person would calmly accept his imminent annihilation because a copy of his mind was uploaded to the computer? It is also possible that technological progress would allow for scanning someone's mind in his sleep. The person would not even know in the morning that a brand new copy of his mind has just been transferred to the computer. Without this knowledge, would he be able to agree that it is he himself that is in this computer? (S 384)

[4] R. Kurzweil, *How to create a mind: the secret of human thought revealed!* New York: Viking 2012, p. 247. His position on this problem was not always so decisive since at one point he only stated that this "is not an easy issue," (idem, *The material world*, p. 44), even though he agreed with Moravec as to the definition of the mind as a pattern.

This raises a plethora of personal and social problems. If one copy of myself commits a crime, would all the copies of me have to go to jail, a cyber-jail in cyberspace as it may be? If the institution of marriage still survives in such a universe, who would be my spouse if there are so many different copies of the spouse? Would all of them be at the same time, since they are one as instantiating one pattern? Providing that the parent-child institution will make any sense then (would a copy of a mind generated by my cyber-mind be considered my child?), who would be responsible for the well-being of the child if there were so many copies of me floating in cyberspace? And who would a child be if the child self-replicated? All the self-replicated copies? If one mind bought a cyber-ticket (paying with bitcoins) to a cyber-event, would all copies of that mind be permitted to get in? In the extreme case, all the cyberseats could be taken by copies of only one mind. That is not good for cyber-business. If one copy of myself successfully passes a quiz or an exam, would all copies of myself be considered as having passed it? Instructors who have ever had identical twins in their classes can see the problem here.

A claim could be made that only a human body in which the soul-pattern is instantiated makes this body the primary/original carrier of personhood. What if technological progress would allow for transferring this pattern to a corpse or even multiple corpses, or to a human body newly created by genetic engineering? These patterns would dwell in human bodies which, as carriers, would not constitute a distinguishing mark or primary carrier of personhood. If the person from whom these patterns were transferred to some corpses or new bodies died, then there would be no way to see which of the patterns should be considered the primary copy. Individuality would be dissolved; specificity of human personhood would be destroyed. Only social restraints from performing such transfers of soul-patterns to cadavers would allow us to avoid such problems with the dissolution of individuality, but it is hard to count on these restraints to be observed by all capable scientists of the future.

Being a *different* copy of the *same* pattern does make the new mind yet another freshly minted mind from the existing exemplar and thus another person. Consequently, the scanning does not do any good for the original mind since it produces a new mind, with the same pattern as the original, but, still, a different mind; therefore, this scanning does not help the original mind any in its quest for immortality since the original mind is still locked

in its original body (cf. A 131). The manufactured mind will live on, if it is not disturbed, but not the original one.

Moravec does allow for the possibility that two mind-copies can become two different people as some unspecified threshold of difference is reached (M 119). However, before crossing this threshold, the entire universe could be populated by millions of copies of the same pattern and yet the claim could be made that we are speaking about the same person. Each of the copies may have different experiences, live different lives, and yet it would be the same person. Well, this could be rectified by merging memories of these different versions of oneself into one memory (115). Moravec even allows for merging memories of different persons into one as a "superior form of communication" (115). It seems, however, that such merging would result in an individual that is neither me nor you, but someone completely new; thereby, if copies of myself and of yourself are not around, my existence and yours end, or rather only metaphorically continue in the progeny, as the result of merging. Surely, by merging two different minds into one, a threshold would be crossed that would make the resulting mind different from the two participants of the merging. This all turns the concept of personal identity into meaninglessness.

Moravec does not stop here. He also wants to resurrect people whose mind-patterns have not been preserved. He proposes a simulation of various models of the history of the Earth by going from the present to the past and using all available information to reconstruct the past that might have led to the present. Because of the assumption of evolution and its reliance on random events, the number of pasts that can be constructed along the way would grow immensely the more into the past the simulation would go. There would be different histories constructed this way and different humans created during simulation, humans who may not have in reality existed at all (M 123; R167). Would patterns of these simulated persons be instantiated by Moravec's simulator? If so, the resurrection of minds in most cases would be in reality creating brand new humans, humans who had never existed before. The simulator would become a god. However, this god-like creation would also be possible in another way, by generating new mind-patterns with desirable properties, presumably for the good of humankind. Humans would thus be deified not only through the presumed ability to live forever, like the ancient gods, but also through the ability to create new humans, which goes beyond the abilities of some ancient gods.

If immortality is at all possible, *human* immortality appears to be very unlikely. "Humans need a sense of body" (R 170); therefore, the body would have to be simulated in the digitized version of the mind, but such a digitized body would only make digitized humans uncompetitive in the digital environment. Therefore, the digitized mind has to be transformed into a version which does not require a body, thereby streamlining it and giving it a chance to survive in the digital world. "But the bodiless mind that results, wonderful though it may be in its clarity of thought and breadth of understanding, would be hardly human. It will have become an AI."[5] In this way, immortality is accomplished by renouncing humanness; humans are inherently mortal, since, while striving to overcome this mortality, they cease to be human.[6] Can this still be called immortality?

There are other problems that would plague the goal of reaching cyber--immortality. If minds were exactly transferred to a computer, they would include their old proclivities, assumptions, values, prejudices, loves, and hates. What if the hatred of one mind for another continues in the cyber--afterlife? One mind may want to destroy (and succeed in destroying) another mind by, say, deleting it by surreptitiously writing itself over the hated one; or, it might generate a virus that deletes or damages the hated mind beyond reconstruction – and every copy of it wherever in the universe it could be. It is quite remarkable how scientific fundamentalists and patternists are unconcerned about the moral aspects of cyber-immortality, the aspect that arguably is more important for the feasibility of such immortality than its technological dimension. At best, they express a fuzzy optimism. Moravec wrote an entire chapter about computer Trojan horses and viruses, and yet he only in passing mentioned the possibility that in the highly intelligent future there may be highly sophisticated viruses able to inflict highly destructive

[5] R 172. A bit more vaguely, this is expressed as the conviction that in the future, "there will be no distinction […] between human and machine or between physical and virtual reality" (S 9, 203).

[6] This idea is considered to be a counterfeit salvation since it is unable "to see finitude and mortality as anything more than unwanted constraints upon the will to be conquered and discarded. But the cost of such a victory is the elimination of the very creatures that need to be saved. One has to destroy humankind in order to save human beings," B. Waters, *Whose salvation? Which eschatology? Transhumanism and Christianity as contending salvific religions*, [in:] R. Cole-Turner (ed.), *Transhumanism and transcendence: Christian hope in an age of technological enhancement*, Washington: Georgetown University Press 2011, p. 173.

damage.[7] The possession of high intelligence by future cyberbeings does not mean that those beings will be paragons of virtue. Intelligence quite too often goes hand-in-hand with vice, and thereby the former increases the fatal impact of the latter on its surroundings.

It is quite paradoxical that the incessant existence of cyber-intelligences will depend on the fleeting existence of the material substrate on which they will be instantiated, fleeting when compared with eternity. A mind could be active in computer memory and its backup copy could be kept on tape. "Should you die, an active copy made from the tape could resume your life. This copy would differ slightly from the version of you that died, in that it lacked the memories since the time of copy" (M 119). First, would the backup copy be truly a resuscitated version of the mind that just died? Secondly, who would assure that the backup copy can be safely and indefinitely kept? What if the tape is damaged, inadvertently or otherwise?[8]

This means that, *pace* Kurzweil, our mortality would be dependent on the survival of the computing circuitry, after all. The mind-software cannot exist without hardware that carries it. The existence of the mind will entirely depend on the existence and reliability of the underlying hardware, which will be more and more impressive, but, still, not eternal and not perfect. The eternal existence of the mind will constantly depend on the temporal existence of devices that carry it. Nanocomputers built from nanotubes (A 139) would hardly be an exception to temporal existence.

The problem can be overcome by the mind copying itself from one computer to another if one computer reaches the end of its usefulness, and from one planet to another when there is a danger of cosmic planetary collision. However, how about the universe itself? If the present trend continues

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[7] M 101; cf. also pp. 137–139; Kurzweil is somewhat aware of such a danger (A 256–257; S 255–256; S 414).

[8] Also, "Who would have access to downloading? Who would pay for the procedure and subsequent cyberspace living expenses?" and, in the words of D.E. Stark, "If your brain pattern has been 'downloaded' into a new, shiny android body, what happens to your old body and brain, presumably still intact and functioning? Who will decide what to do with that entity? Who will break the news to it if the decision is made that there can only be 'one you' in the universe, and it is time to 'shut it down?'" M. Seesholtz, *Exotechnology:* human *efforts to evolve beyond human* being, [in:] R.B. Miller, M.T. Wolf (eds.), *Thinking robots, an aware internet, and cyberpunk librarians*, Chicago: Library and Information Technology Association 1992, pp. 65, 68.

and the universe reaches the state of the heat death, there will not be any substrate for the cyber-patterns to live on; or, maybe the theory of the oscillating universe is true and the universe will collapse in the big crunch, but the highly contrived scenario of using a finite amount of energy to infinitely sustain these patterns (M 148), which recalls Zeno's argument, is hardly credible ("half-baked," in Moravec's own words). Kurzweil expressed only vague optimism by saying, "rather, the fate of the Universe is a decision yet to be made, one which we will intelligently consider when the time is right."[9] Maybe we should heed Dyson's admonition that "looking to the future [of the universe], we give up immediately any pretense of being scientifically respectable" and that "every speculation concerning the long-range future of humanity must end, as mine is ending, in fantasy," as he rather humbly admitted about his own projections into the future.[10]

Moravec, Kurzweil and many other authors believe that AI will reach such a level that it will become millions and millions of times more intelligent than humans.[11] If so, it is only by the graciousness of these entities that human patterns would be allowed to occupy space in computers, unnecessarily clogging them with the paltry human presence. It would be much more efficient for a smooth flow of information and data processing to delete these human patterns altogether. In a way, Moravec recognizes this when he proclaims that the days of humans are numbered (M 1, 102; R 78, 134). Apparently, that may happen even before the technology would allow for transferring human minds into computers. Thus, Moravec contradicts himself by condemning, on the one hand, the human race to "silently fade away" (M 1) and "be squeezed out of existence" (R 134), and yet painting the bright prospect of immortality on the other. He does mention the possibility of programming robots to take care of humans (R 13), but because super-intelligences are self-programming, they very well can expunge from their program the care-for-humans part, since such care would be in the way of survival and progress of the future robotic world. Besides, because the possibility of

[9] A 260, 280; S 361–362. And again, "waking up the universe, and then intelligently deciding its fate by infusing it with our human intelligence in its nonbiological form, is our destiny," R. Kurzweil, *How to create a mind*, p. 282.

[10] F. Dyson, *Infinite in all directions*, New York: Harper & Row 1988, pp. 103, 291.

[11] This fact is rather disquieting for some who want to make some countermeasures, cf. J. Barrat, *Our final invention: artificial intelligence and the end of the human era*, New York: Thomas Dunne Books 2013.

"rogue robots… with superhuman intelligence and illegal goals" is real (R 140), the robotic rogue behavior can be fatal for humans.

The patternist approach in defining the mind, although used by materialists, has strong religious overtones. Crevier argues for "the possibility of transferring the mind from one support to another," since it is supported by the near-death experience, and since "the Judeo-Christian tradition is not inconsistent with an intimate association of mind and body," he seems to suggest the compatibility of Christian eschatology with the possibility of "the gradual and eventual replacement of brain cells by electronic circuits with identical input-output functions."[12] Even Moravec makes a reference to Christianity when stating that the idea of the uploaded mind "really is a sort of Christian fantasy: this is how to become pure spirit,"[13] in which, in spite of his Catholic upbringing,[14] he forgets that Christians say that the resurrected person has both body and soul. It is Eastern religions that yearn for the eternal existence of the disembodied soul.

One problem materialists have with the immortality of the mind is the need for a material substrate as a carrier of the mind-software, a material substrate which is not eternal. A theologian can easily solve the problem by reference to God and His mind.

According to Polkinghorne, the soul "expresses and carries the continuity of living personhood," the information-bearing pattern[15] which, in his view, is also expressed by a cruder image of the soul as "the software

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[12] D. Crevier, *AI: the tumultuous history of the search for artificial intelligence*, New York: Basic Books 1993, pp. 280, 278, 279.

[13] E. Regis, *Great mambo chicken and the transhuman condition*, Reading: Addison-Wesley 1990, p. 176; this is motivated by the view that "the idea that your essence is software seems a very small step from the view that your essence is spirit," p. 6; therefore, as rhapsodized by one author, "we will all become angels, and for eternity," – N. Stenger, *Mind is a leaking rainbow*, [in:] M. Benedikt (ed.), *Cyberspace: first steps*, Cambridge: The MIT Press 1991, p. 52.

[14] G. Fjermedal, *The tomorrow makers: a brave new world of living-brain machines*, New York: Macmillan 1986, p. 18. That Moravec wanted to enlist Christianity into his robotic future is indicated by the statement that, in his view, the selflessness of the future robots will offer what "the Christians call 'agape'" (R 119).

[15] J. Polkinghorne, *The god of hope and the end of the world*, New Haven: Yale University Press 2002, p. 105; idem, *The faith of a physicist: reflections of a bottom-up thinker*, Minneapolis: Fortress Press 1994, p. 163; idem, *Belief in God in an age of science*, New Haven: Yale University Press 1998, p. 22.

running on the hardware of the body."[16] The soul-pattern is a dynamic entity, but there are invariable elements that determine personal identity. Such a soul is not inherently immortal. It is kept "in the divine memory after that person's death"[17] because "the souls awaiting the final resurrection are held in the mind of God."[18]

Polkinghorne states that by adopting the patternist understanding of the soul, he revives the form-body distinction advocated by Thomas Aquinas.[19] However, Aquinas' approach is a bit more nuanced. True, he did define the soul as the form of a body (*Summa th.* 1.75.5), but only after he defined it as a principle that is incorporeal and subsistent, where something subsistent is simply a substance (1.75.2). That is, the soul is an incorporeal substance, very much in the Platonic-Augustinian tradition (Aquinas often quoted Augustine in his *Treatise of man*). In this, the human rational soul has a special status among all forms, since, unlike other forms, it can exist after the dissolution of the body (1.76.1 ad 5). Being the highest and noblest of forms (1.76.1), it is at the same time the lowest among intellectual substances (1.89.1). The patternist understanding of the soul is thus at best the revival of the peripatetic pneumatology rather than the Thomistic view of man.[20]

Polkinghorne recognizes the theoretical possibility of the multiplication of persons in the form of multiple reembodiments. However, he is certain that such multiplication would not take place because God would never allow it to happen.[21] However, would God intervene in human attempts to transfer the soul-pattern into other carriers? And if human attempts were successful, Polkinhorne's patternist approach would suffer from the same

[16] Idem, *The God of Hope*, p. 106; idem, *The faith of a physicist*, p. 164.

[17] Idem, *The God of Hope*, p. 107.

[18] Ibidem, p. 110; idem, *The faith of a physicist*, pp. 163, 173; Moravec, guided by his scientific fundamentalism, in a way tries to mimic this approach: in his view, "the superintelligent robots in the future, I mean *really* intelligent" would be "truly godlike entities" and "they would sometimes think about us and when they thought of us their thoughts would be in such detail that we would be recreated [...] and we [...] would feel just as we do now," [On death], in: P. Anderson (ed.), *All of us: Americans talk about the meaning of death*, New York: Delacorte Press 1996, p. 332.

[19] J. Polkinghorne, *The God of Hope*, pp. 12, 106.

[20] Although Aristotle did allow for the immortality of the active mind, it was an impersonal immortality, A. Drozdek, *Athanasia: afterlife in Greek philosophy*, Hildesheim: Georg Olms Verlag 2011, ch. 15.

[21] J. Polkinghorne, *The God of hope*, p. 108.

problems as already described, except that the eternity of God would guarantee the eternity of the pattern held in His mind and thus the possibility of resurrection in the new heaven and earth.

In his approach, Polkinghorne may have taken a cue from the Christian view of resurrection, which is really the resurrection of the body to be united with the soul which had previously been released from its union with the body after the body died. If this new, glorified body is to resemble, at least to some extent, the earthly body which was once indwelled by the soul, the pattern of the body has to be somehow remembered; and just as resurrection is God's act, so is God's preservation of the pattern of the body in His mind. Polkinghorne carries this view even further: If the pattern of the body has to be preserved for the body to be resurrected, then nothing else is needed when the soul is identified with the information-bearing pattern of the brain whose makeup could be preserved in the divine mind along with the entire body. This means the resurrection of the body would automatically signify the resurrection of the soul. However, it would be difficult to expect wide acceptance of this view among Christians.

It appears that the patternist defense of the immortality of the mind/soul is self-defeating. The continuation of the pattern is not a way to the immortal existence of the self. A better defense is offered by the Platonist-Augustinian approach of the continuity of the substance.[22] In religious eschatology, this would be the soul, but the avenue is not closed for materialists. They could claim that this mental substance is material. True, it is imperceptible and would be known only from its effects, but such understanding of this substance is not necessarily unacceptable for materialists. Let us remember phlogiston (which even had negative weight) and the aether, which were accepted as state-of-the-art science of their times. Today, astronomers tell us that there is dark matter and dark energy filling 95% of the universe. They are unobservable but necessary to explain the gravitational effects of visible matter. The nature of this mental substance could be assumed to be indestructible, which is a concept not alien to science: the conservation of energy principle tells us that in this closed system, energy cannot be created

[22] "The soul, whether it be termed material or immaterial, has a certain nature of its own, created from a substance superior to the elements of this world, a substance which cannot be truly conceived of by any representation of the material images perceived by the bodily senses, but which is apprehended by the understanding and discovered to our consciousness by its living energy," Augustine, *Ep.* 166.2.4.

or destroyed; it can be transformed into matter; thus, matter is a different form of the existence of energy. A special kind of mental substance would agree with the patternist philosophy which is essentially dualist since it very rigidly separates patterns from a substrate in which patterns are instantiated and thus considers the human body as a carrier of the mind as an evolutionary accident; this body can and even should be rejected in favor of something more durable and something that allows for expansion of the mental faculties. In this vein, dualism is explicitly acknowledged and embraced with the statement that "those who speak of the 'Cartesian dichotomy of mind and body' are sorely mistaken. *Cartesian dualism is not the cause of our problems, but the beginning of the solution* [...] Descartes is not the villain but the hero of the piece. Cartesian duality marks the beginning of human evolution from *Homo sapiens* to *Homo cyberneticus* – man the steersman of his own destiny."[23]

However, the substance identity view of the mind would rule out the possibility of just transferring the pattern of the brain to be stored as the mind file. The pattern of the brain would have to be replicated in some form: would storing this pattern in a digital form be sufficient? Kurzweil speaks about building, in effect, an artificial brain, a digital-analog computer. Would the mind substance be willing to use such a brain as its residence? Assuming that it would work, it would make the prospect of immortality quite dim, since the mind-substance could not be copied, but transferred from the current substrate to another one only once at a time. Even assuming that the mind substance can be replicated, the replicated copy would clearly be different from the original mind, and thus such a replication may be good for populating some distant planets after sending only a few minds there, but it does not address the problem of immortality.

All in all, it seems that the prospect of immortality in the digital future as proposed by patternists looks very bleak. However, heeding the call of Kurzweil, maybe death should be embraced, after all: "A great deal of our effort goes into avoiding it. We make extraordinary efforts to delay it, and indeed often consider its intrusion a tragic event. Yet we would find it hard to live without it. Death gives meaning to our lives. It gives importance and value to time. Time would become meaningless if there were too much of it."[24]

[23] S. Young, *Designer evolution: a transhumanist manifesto*, Amherst: Prometheus Books 2006, p. 34.

[24] A 2, repeated in *The material world*, p. 53.

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ON CYBERIMMORTALITY

Summary

This article discusses the view of man as software, which leads to a view of personal immortality accomplished by uploading the mind to the computer. The view has been defended by computer scientists (e.g., Moravec, Kurzweil) and by theologians (e.g., Polkinghorne). The article argues that true immortality of the mind, or of the pattern of the mind, is riddled with the problem of maintaining personal identity. Moreover, because the preservation of the mind pattern requires a material substrate, the view also assumes that the material world is eternal. This article favors the Platonist-Augustinian view of immortality of the soul understood as a substance.