The Death of Philosophy through the Naturalization of the Mind

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Abstract

In this essay, I try to make sense of the idea that philosophy will someday come to an end or "die." I first clarify how I understand such an idea, after which I present a viable hypothesis on what will bring it about. Accordingly, the "death of philosophy," to my mind, refers to an event in which the act of philosophizing is either no longer done or no longer taken to be worth doing. And given that a philosophical problem ceases to be philosophical once a scientific way to handle it has been established, I advance the hypothesis that philosophy's demise will come about once the project to naturalize the mind (or to explain its workings in purely scientific terms) is successfully completed. Three things make this hypothesis viable: (1) the centrality of the mind in philosophizing; (2) the power of the computational framework used to carry out this project; and (3) the seriousness with which this project is currently being pursued especially in the areas of (analytic) philosophy, cognitive science, and artificial intelligence.

Keywords: death of philosophy, end of philosophy, naturalization of the mind, mind, computationalism

Introduction

In contemporary analytic philosophy, an exciting area of research concerns the naturalization of the mind or the project of explaining the workings of the mind in purely scientific terms. For present purposes, I shall sometimes refer to this project simply as the "scientific project." The motivations for this project are both scientific and philosophical. The scientific motivation is the belief that the naturalization of the mind would pave the way for the long-desired completion of the scientific account of the natural world. The mind or consciousness is an integral

part of the natural world and thus for science to ignore it, or to fail to account for it, in its investigations would render its explanation of the natural world as significantly incomplete. On the other hand, the philosophical motivation is the belief that the scientific project is what will provide the much-desired rigor for the philosophical investigations done on the nature of the mind. For as the mind plays a critical role in most, if not all, philosophical inquiries, it is deemed necessary that our understanding of its workings be sufficiently rigorous.

In this paper,[1] I shall use this scientific project as a framework for dealing with a topic that from time to time occupies, or perhaps "worries," philosophers—usually after but sometimes even while in the midst of wrestling with some philosophical issue or controversy. This topic refers to the *end* or *death of philosophy*. While there is no doubt about the glorious past of philosophy, there, however, seems to be some uncertainty about its current status and role. As science and technology continue to make significant advances, the value of philosophizing is becoming less and less clear. And if this trend continues, the end of the whole philosophical enterprise will not be a far-fetched possibility.

Building on the idea that a philosophical problem ceases to be philosophical once a scientific way to handle it has already been established, I shall advance the hypothesis that the naturalization of the mind will bring about philosophy's demise. Three things account for the viability of this hypothesis: first is the centrality of the mind in philosophizing; second is the power of the computational framework used to carry out the said project; and third is the seriousness with which this project is currently being pursued especially in the areas of (analytic) philosophy, cognitive science, and artificial intelligence.

I shall divide my discussion into four parts. In the first part, I shall clarify the meaning of the expression "death of philosophy." In the second part, I shall demonstrate what makes the mind a central concern in philosophy. In the third part, I shall discuss the main theses of the computational theory of mind and its dominance as a framework for naturalizing the mind. And in the fourth part, I shall explore the consequences of the computational framework—as it is particularly applied in artificial intelligence—on the future of philosophy should it prove to be successful in naturalizing the mind.

The "Death of Philosophy"

The expression "philosophy is dead" can mean differently to those who announce it or consider its possibility; and so it is best that we first clarify how we shall understand it in our discussion. Let us begin with the word "death"—which we shall use interchangeably with the word "end"—and then proceed with the word "philosophy."

Ontological and Axiological Types of Death

There are generally two things about something that can end or die: one is its existence; another is its relevance or value. For when we say that something dies, we generally mean either that it no longer exists or it is no longer relevant or valuable. In light of this consideration, let us then distinguish between two types of death: *ontological death* and *axiological death*. Ontological death occurs when something ceases to be or loses its existence, while axiological death occurs when something ceases to be relevant or loses its value.

These two types of death obviously do not correspond to one another; for what is ontologically dead may be axiologically alive, and what is ontologically alive may be axiologically dead. For instance, a person who is still alive but is not related to us in any way has no relevance for us—at least on a personal level. We can say that this person is ontologically alive but in so far as we are concerned she is axiologically dead. But an ontologically dead person who continues to be valuable to us—say we continue to derive inspiration from her noble actions when she was still alive—in so far as we are concerned, will still be axiologically alive. There are, of course, living persons to whom we are at the moment significantly related. These are persons who are ontologically alive and, in so far as we are concerned, axiologically alive as well. And there are dead persons who we do not know: such persons are ontologically dead and, in so far as we are concerned, are likewise axiologically dead.

Consequently, the death of philosophy could be seen in the same way: it could either refer to the non-existence of philosophy, corresponding to philosophy's ontological death, or to the non-relevance of philosophy, corresponding to philosophy's axiological death. When one says that philosophy is dead, one can either mean, therefore, that philosophy no longer exists or it is no longer relevant, or that the act of philosophizing is no longer done or it is no longer taken to be worth doing. Philosophy, of course, still exists today; and thus it is still ontologically alive, though some may find it axiologically dead already. But when one

speaks of the possible death of philosophy in the future, one can mean either the ontological death of philosophy or its axiological death.

The Scale and Form of Philosophy

Let us now turn to the possible meanings that can be attached to the word "philosophy" in the context of the expression "death of philosophy." For present purposes, let us examine the various uses of this word in consideration of its *scale* and *form*, and then correlate them with the two meanings of the word "death" that we have just discussed.

In terms of scale or scope, the use of the word "philosophy" may be intended to refer either to some particular types of philosophy or to the whole philosophical enterprise. In this light, in saying that philosophy is dead what one is saying to be dead is either a particular area in the entire world of philosophy or the entire world of philosophy itself. When what is intended is just a particular area or region in the entire philosophical world, we shall call the intended scale in the use of the word "philosophy" *local;* while when what is intended is the entire philosophical world, we shall call it *global.*

Now what does it mean for a particular type of philosophy to come to an end? Or how will philosophy die locally? There are two ways that can be gleaned from the history of philosophy. First, a particular type of philosophy ends when it ceases to be part of the discipline of philosophy, which occurs when such type of philosophy becomes part of or is assimilated by the discipline of science. It is said that all academic disciplines used to be under the umbrella discipline of philosophy, but the time came when some of these disciplines became sciences and thus separated from philosophy. Psychology, for instance, used to be part of philosophy but was later on classified as a science when scientific methods were developed to deal with its concerns. It will also be recalled that what we now call "empirical sciences" used to be called "natural philosophies." Secondly, a particular type of philosophy ends when it loses its centrality, dominance, or popularity in the philosophical world. For instance, during the heyday of the philosophy of language in the analytic tradition, some announced the death of epistemology—which previously dominated the philosophical scene. Another example was when Postmodernism became fashionable in the world of Continental philosophy, modern philosophy—here understood as representing logocentric philosophies or philosophies described as grand metanarratives—was announced to be dead. Observe also the following remarks by Wittgenstein in the *Tractatus Logico-Philosophicus* (4.112):

Philosophy aims at the logical clarification of thoughts.

Philosophy is not a body of doctrines but an activity.

A philosophical work consists essentially of elucidations.

Philosophy does not result in "philosophical propositions", but rather in the clarification of propositions.

Without philosophy thoughts are, as it were, cloudy and indistinct: its task is to make them clear and to give them sharp boundaries.[2]

Wittgenstein, in effect, is saying here that the kind of philosophy whose function is to provide a body of doctrines that represents things as they are is no longer relevant and is therefore dead. What for him is the kind of philosophy that is very much alive is the one that engages in the activity of logically clarifying thoughts.

Notice that there is a difference in these two ways in which a particular type of philosophy is said to be dead. On the one hand, the philosophical discipline that has become a scientific discipline is no longer part of the discipline of philosophy. We say that this philosophical discipline has died ontologically. On the other hand, the type of philosophy that has been dislodged from its central or dominant position is still very much part of philosophy. We say that this type of philosophy has only died axiologically. This shows that philosophy's local death can also be either ontological or axiological.

Now what about the death of the whole enterprise of philosophy? What does it mean for philosophy to die on a global scale? Taking our cue from how the local death of philosophy takes place, it would simply mean either of the following. First, that all the questions raised and dealt with in philosophy can already be dealt with in the sciences, in which case the global death of philosophy is ontological. Second, that philosophy as a whole loses its relevance as an intellectual pursuit in search for answers to certain types of questions, in which case the global death of philosophy is axiological.

From the scale of philosophy, let us now turn to its form. By philosophy's form, we specifically mean the *intellectual* and *institutional* aspects of philosophy. The intellectual aspect of philosophy refers to how philosophers themselves normally understand the activity of philosophizing; and that is, as generally referring to the pursuit of wisdom

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[2] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus,* trans. D. F. Pears and B. F. McGuinness (London: Routledge and Kegan Paul, 1974), 29-30.

or as particularly referring to the search for answers to certain types of questions. On the other hand, philosophy's institutional aspect refers to the fact that philosophy is offered in formal educational institutions as an academic subject or degree. Accordingly, we can distinguish between *intellectual philosophy* and *institutional philosophy*. Now while these two types of philosophy usually coincide—as most philosophers do their philosophizing in the context of academic institutions—they are actually independent from one another. The reason is that there are some philosophers who pursue their philosophical projects outside the academe. Among others, Spinoza, for instance, wrote his seminal works while working as a lens grinder, and Wittgenstein wrote his *Tractatus* while serving his country as a soldier during the First World War.

The philosophy that is said to be dead or will be dead can thus either refer to institutional philosophy or to intellectual philosophy. But now let us examine the correlation between the scale and form of philosophy. To begin with, the death of institutional philosophy can be local or global, and likewise with intellectual philosophy. Regarding institutional philosophy, its local death would mean the abolition of certain philosophy subjects or academic degrees in philosophy offered in some academic institutions; whereas its global death would mean the abolition of philosophy courses and degrees in all academic institutions. On the other hand, regarding intellectual philosophy, its local death would mean that certain types of philosophy cease to be regarded as philosophical disciplines as they are already assimilated in the sciences; whereas its global death would mean that philosophy as an intellectual enterprise ceases to be relevant in terms of finding solutions to the problems it tackles—as there are already scientific ways to handle such questions.

It shall be observed that the death of institutional and intellectual philosophies on a local scale has already started to happen. We see the required philosophy courses being taught in the academe as continuously decreasing in number. And in some educational institutions, academic degrees in philosophy are not offerred at all; while in some other academic institutions these degrees have been abolished. On the other hand, we have already seen how some areas which originally belong to philosophy have become part of the sciences.

So now I think the worry is whether the local scale of philosophy's death will continue until it reaches a global scale. For institutional philosophy to die on a global scale, I think, is unlikely, for even if intellectual philosophy will die on a global scale, philosophy will always have a historical value in the development of knowledge. And even just for this reason, philosophy will continue to be studied in the academe. With this, the real worry about philosophy's death comes down to whether

intellectual philosophy will die on a global scale, both ontologically, when nobody will philosophize anymore, and axiologically, when nobody will find philosophizing valuable anymore. Consequently, this is how I shall understand the death of philosophy in the ensuing discussion.

The Centrality of Mind in Philosophy

After clarifying how we shall take the death of philosophy to mean, let us now explore how this death can possibly come about. We earlier noted that a particular philosophical inquiry ceases to be philosophical when there is already a science that can handle such an inquiry. On this basis, we further noted that the whole enterprise of philosophy can die if all its inquiries can already be handled by science. Stephen Hawking and Leonard Mlodinow express this viewpoint well as follows:

> Living in this vast world that is by turns kind and cruel, and gazing at the immense heavens above, people have always asked a multitude of questions. How can we understand the world in which we find ourselves? How does the universe behave? What is the nature of reality? Where did all this come from? Did the universe need a creator? ...
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> *Traditionally these are questions for philosophy, but philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics. Scientists have become the bearers of this torch of discovery in our quest for knowledge.*[3] [Italics mine]

Bertrand Russell had earlier articulated the same viewpoint; thus:

> If you ask a mathematician, a minerologist, a historian, or any other man of learning, what definite body of truths has been ascertained by his science, his answer will last as long as you are willing to listen. But if you put the same question to a philosopher, he will, if he is candid, have to confess that his study has not achieved positive results such as have been achieved by other sciences. It is true that this

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[3] Stephen Hawking and Leonard Mlodinow, *The Grand Design* (New York: Bantam Books, 2010), 5.

is partly accounted for by the fact that, *as soon as definite knowledge concerning any subject matter becomes possible, this subject ceases to be called philosophy, and becomes a separate science...*Thus, to a great extent, the uncertainty of philosophy is more apparent than real: those questions which are already capable of definite answers are placed in the sciences, while those only to which, at present, no definite answer can be given, remain to form the residue which is called philosophy.[4] [Italics mine]

Now, for science to completely take over the business of philosophizing, what is needed is simply the development of a particular kind of science that will be able to scientifically handle the *fundamental* philosophical inquiries—for this would naturally extend to all the *derivative* philosophical inquiries. Hawking and Mlodinow above seem to suggest that such a science must be physics. My hypothesis, however, points to another direction: that such a science is more appropriately the one that will come out from a successful naturalization of the mind, namely a *science of the mind.* There are two major considerations for this hypothesis: the centrality of the mind in philosophizing, which renders philosophical questions about the mind fundamental; and the critical role that the mind plays in the success of the over-all project of science.

Several scholars regard the mind as a major obstacle in the grand goal of science to complete its account of the natural world. Daniel Dennett puts this poignantly in the following:

Human consciousness is just about the last surviving mystery.... There have been other great mysteries: the mystery of the origin of the universe, the mystery of life and reproduction, the mystery of the design to be found in nature, the mysteries of time, space, and gravity.... We do not yet have the final answers to any of the questions of cosmology and particle physics, molecular genetics, and evolutionary theory, but we do know how to think about them. The mysteries haven't vanished, but they have been tamed.... With consciousness, however, we are still in a terrible muddle.[5]

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[4] Bertrand Russell, *The Problems of Philosophy* (New York: Oxford University Press, 1980), 90.

[5] Daniel C. Dennett, *Consciousness Explained* (Boston: Little, Brown, and Co., 1991), 21-22. [Quoted in Güven Güzeldere, "The Many Faces of Consciousness: A

Roger Penrose puts it rather straightforwardly when he writes:

> A scientific world-view which does not profoundly come to terms with the problem of conscious minds can have no serious pretensions of completeness. Consciousness is part of our universe, so any physical theory which makes no proper place for it falls fundamentally short of providing a genuine description of the world.[6]

David Chalmers does the same when he remarks: "Consciousness is the biggest mystery. It may be the largest outstanding obstacle in our quest for a scientific understanding of the universe."[7]

On the other hand, there are, among others, two basic reasons why the mind is valuable to philosophizing. First, it is the mind that makes knowing, and for that matter philosophizing as well, possible. As knowing and philosophizing are activities of the mind, what the mind is and how it works certainly affect what we know and what we philosophize about. After all, the sense of wonder, which is said to be what ignites the flame of philosophizing, is a mental activity. Secondly, the mind is what ultimately defines our identity both on the level of species and on the level of individual persons. Between our physical and mental attributes, we more often refer to our mental attributes in defining who we are. For instance, we allude to our consciousness, rationality, and freedom in distinguishing ourselves from the rest of nature; while we allude to our particular beliefs, desires, hopes, menories, and fears in distinguishing ourselves from one another.

Now the value of the mind in philosophizing is also a critical one, as shown by the fact that it is always involved in various philosophical concerns. Metaphysics, for instance, must deal with the reality of the mind to deal with what reality ultimately consists in. For epistemology to explain the possibility of knowledge, it must examine the structure of the mind and investigate the types and generation of ideas in the mind. Ethics must deal with mental concepts such as intentions, pleasure and pains, free will, and empathy in order to clarify the foundations of moral

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Field Guide," in *The Nature of Consciousness: Philosophical Debates*, ed. Ned Block, Owen Flanagan, and Güven Güzeldere (Massachusetts: MIT Press, 1997), 2-3.]

    [6] Roger Penrose, *Shadows of the Mind: A Search for the Missing Science of Consciousness* (Oxford: Oxford University Press. 1994), 8.

    [7] David J. Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1997), xi.

judgements. Philosophy of language must deal with the mental states of a speaker to determine the meaningfulness of her utterances. And social philosophy must deal with the mental phenomenon called "collective intentionality" in order to explain the distinct reality of social facts.[8]

Despite the centrality of its role in philosophizing, it is, however, only quite recently that a distinct and separate branch of philosophy that specifically deals with the nature of the mind, namely the *philosophy of mind,* has come to be recognized. But though relatively young as a philosophical discipline, the philosophy of mind has already come to dominate contemporary analytic philosophizing, prompting some contemporary analytic philosophers of note to regard it as the current first philosophy at least in the analytic tradition. John Searle, for instance, writes:

> A very curious thing has happened in the past two or three decades—the philosophy of mind has moved to the center of philosophy. Several other important branches of philosophy, such as epistemology, metaphysics, the philosophy of action and even the philosophy of language, are now treated as dependent on, and in some cases even as branches of, the philosophy of mind. Whereas fifty years ago the philosophy of language was considered "first philosophy," now it is the philosophy of mind.[9]

Two fundamental reasons account for the development of the philosophy of mind as a distinct branch of philosophy and the current dominance it is enjoying. The first is some internal development within the discipline of philosophy itself which the discipline must respond to. This basically refers to the transition from the philosophy of language to the philosophy of mind as the central branch of philosophy as narrated by Searle. The second is some external development in certain areas of the sciences that philosophy must respond to. This development refers to the emergence of certain disciplines claiming to have discovered a scientific account of the mind. These disciplines refer to *artificial intelligence,* which is a branch of computer science devoted to the construction of intelligent machines, and *cognitive science,* the projected inter-disciplinary science of the mind which draws from the

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[8] See John R. Searle, *The Construction of Social Reality* (New York: The Free Press, 1995).
[9] John R. Searle, "The Future of Philosophy," *Philosophical Transactions: Biological Sciences* 354.1392, Millenium Issue (Dec. 29, 1999):2075.

findings of philosophy, neuroscience, artificial intelligence, cognitive psychology, linguistics, and anthroplogy. What is common to both disciplines is its adherence to what has been called the *computational theory of mind* or *computationalism*, which regards the mind as a kind of computer.

The Dominance of the Computational Framework

There are a number of proposed frameworks for the naturalization of the mind that compete with one another. These frameworks are classified in the philosophy of mind as the *materialist* theories of the mind for they all attribute a physical existence to the mind (or to mental states and processes). By physical existence, we mean here the kind of existence that lends itself to the methods of science which basically consist of observation and quantification. These materialist views contrast with the non-materialist views which attribute a non-physical or abstract existence to the mind. Foremost of these non-materialist views are the *substance dualism* of Descartes, which regards mental and physical substances or entities as equally real; and the *idealism* of Berkeley, which only regards mental substances as real.

The following, on the other hand, are the prominent materialist views along with their basic claims: *(mind-brain) identity theory*, which reduces mental phenomena to the neural states of the brain (e.g., to be in pain is for the C-fibers of the brain to be excited); *behaviorism,* which reduces mental states to behavioral dispositions (e.g., to be in pain is to be inclined to exhibit certain behaviors such as crying, grimacing, and others); *eliminative materialism,* which rejects the reality of mental states by showing the falsity of folk psychology, allegedly referring to the common-sense theory that posits the existence of mental states; *instrumentalism,* which regards the attribution of mental states to organisms merely as a convenient device for predicting their behaviors; *functionalism,* which defines mental states in terms of their roles in some causal organization; *computationalism* or the *computational theory of mind,* which regards mental states as computational states or as the physical states of a running computer program; *quantum view of consciousness*, which regards mental states as quantum states in the microtubules of the neurons; and *biological naturalism*, which regards mental states as higher-level biological states of the brain.[10]

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[10] For a detailed discussion of these theories of mind, see Chapter 2 of Napoleon Mabaquiao, *Mind, Science and Computation* (Quezon City: Vibal Publishing Inc. and De

Each of these materialist views proposes a particular mechanism by which to naturalize the mind. Computationalism, however, has proven to be the currently most dominant and promising of these views. As Chalmers attests:

> Perhaps no concept is more central to the foundations of modern cognitive science than that of computation. The ambitions of artificial intelligence rest on a computational framework, and in other areas of cognitive science, models of cognitive processes are most frequently cast in computational terms. ...
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> ...
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> ... No matter how cognitive science progresses in the coming years, there is good reason to believe that computation will be at center stage.[11]

Computationalism has an abstract thesis and two sub-theses. The *abstract thesis* states that thinking is a kind of computing. The two sub-theses pertain to the instantiations of this abstract thesis in humans and machines. I shall call the sub-thesis in which the abstract thesis is instantiated in humans the *thesis of human computationality*; while that in machines the *thesis of machine intelligence*. The thesis of human computationality simply asserts that human thinking is a kind of computing; whereas the thesis of machine intelligence claims that computing machines that are capable of simulating human thought processes are themselves intelligent.

Incidentally, as machine intellligence is also sometimes called "artificial intellligence," we need to clarify the other significations of the latter term. In this regard, "artificial intelligence" also refers to a discipline (as a branch of computer science) whose researches are devoted to the construction of intelligent machines, and to the general view that the computer is a powerful tool for understanding the workings of the mind. This general view has been baptized by Searle as "Weak AI" to distinguish it from what he called "Strong AI," which makes the bold

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La Salle University, 2012).
    [11] David J. Chalmers, "A Computational Foundation for the Study of Cognition," *Journal of Cognitive Science* (2012), http://consc.net/papers/computation.html (accessed Feb. 1, 2012), 1-18.

claim that the mind is a kind of computer,[12] and which eventually has become synonymous with "computationalism."

Computationalism sees the relation betweem mind and brain as a type of relation between software and hardware: "the mind is to software as the brain is to hardware"—as it is popularly put. What we call the mind is the software (or a collection of programs) which when run by some hardware—the brain in the case of humans—constitutes thinking. The difference between human intelligence and machine intelligence, in this regard, is simply a matter of degree: human intelligence happens to be just more complex or sophisticated than machine intelligence. Now as the same software can be run by various types of hardware, the human mind can thus be run by other pieces of hardware other than the brain, as long as these other pieces of hardware have the same sophistication as the human brain. This phenomenon, called the principle of *multiple realizability*, is what paves the way for the belief that it is possible to construct machines that will be capable of the kind of intelligence that humans are capable of.

What are the advantages of computationalism over the other scientific frameworks? Mainly, it is the power, flexibility, and fast development of the technology that it utilizes—the computer technology. As Zenon Pylyshyn writes: "At the most abstract level the class of mechanisms called *computers* are the only known mechanisms that are sufficiently plastic in their behavior to match the plasticity of human cognition."[13] It has always been the practice of philosophers (as well as of scientists) to use the technology of the times to shed light on some mysterious phenomena. Descartes, for instance, used the clock, the most sophisticated machine during his time, as an analogy to explain the mechanistic nature of the physical world. In our present time, is not only that the computer happens to be the latest technology but it also proves to be a very powerful one especially in simulating human thought processes.

The Singularity and Philosophy

The popularity of the computational framework has transcended the walls of the academe. It has, for instance, invaded the entertainment business with the proliferation of science fiction movies with themes revolving around the possibility of intelligent machines. Examples of such

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[12] John R. Searle, "Minds, Brains, and Programs," *Behavioral and Brain Sciences* 3.3 (1980): 417-419.
[13] Zenon Pylyshyn, "Computing in Cognitive Science," in *Foundations of Cognitive Science*, ed. Michael I. Posner (Cambridge: MIT Press, 1989), 52.

movies are: *Blade Runner, The Matrix, Bicentennial Man, The Terminator, A.I. Artificial Intelligence*, and *I, Robot*. The existence or construction of intelligent machines or AI's is the most concrete manifestation of the computational framework should it prove to be successful in naturalizing the mind. For if the human mind is indeed nothing but a piece of software (or a bunch of "cognitive algorithms") implemented in the hardware of the human brain, it will then be possible to duplicate it, either by direct programming or by "brain emulation" (a computer simulation of the relevant functional properties of the brain), and then put its computer duplicate in a machine whose hardware is sophisticated enough to implement or run it. This machine would then be as intelligent (and as conscious) as the duplicated human mind.

In the said science fiction movies, there is usually a projection of what life would be like for humans if AI's were already in existence. And often the projection is that humans will be competing with these AI's for power and dominance on planet Earth. These movies usually touch on the angle of a power struggle between humans and machines. But what about the angle of intelligence itself? What is going to happen to the state of intelligence or knowledge if AI's are already a reality? Some AI scientists and philosophers sympathetic to the AI project talk about a phenomenon called the *singularity*, referring to the explosion of intelligence which they think will inevitably follow from the existence of AI's. Chalmers explains:

> What happens when machines become more intelligent than humans? One view is that this event will be followed by an explosion to ever-greater levels of intelligence, as each generation of machines creates more intelligent machines in turn. This intelligence explosion is now often known as the "singularity."[14]

Chalmers then puts the argument for the singularity as follows:

> To analyze the argument for a singularity in a more rigorous form, it is helpful to introduce some terminology. Let us say that AI is artificial intelligence of human level or greater (that is, at least as intelligent as an average human).

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[14] David J. Chalmers, "The Singularity: A Philosophical Analysis," *Journal of Consciousness Studies* 17 (2010): 1, http://consc.net/papers/singularity.pdf (accessed Feb. 1, 2012).

Let us say that AI+ is artificial intelligence of greater than human level (that is, more intelligent than the most intelligent human). Let us say that AI++ is AI of far greater than human level (say, as far beyond the most intelligent human as the most intelligent human is beyond a mouse). Then we can put the argument for an intelligence explosion as follows:

1. There will be AI+.
2. If there is AI+, there will be AI++.
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3. There will be AI++.[15]

The question in order is, what is going to happen to philosophy if the singularity becomes a reality? Presumably the kind of intelligence that will explode here is of the scientific kind. If so, it is then logical to suppose that all areas of human intelligence, including the philosophical ones, can already be dealt with scientifically.[16] Now, isn't this already the global death of intellectual philosophy?

Is the singularity a possible phenomenon? In so far as there is no contradiction in the concept of the singularity, it is logically possible. And in so far as its occurrence will not violate any natural laws, it is nomologically (or naturally) possible.[17] What is simply needed to

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[15] Ibid., 4-5.

[16] Interestingly, with the intelligence explosion, even the phenomenon of human mortality, which some consider to be a main source of philosophizing, shall be dealt with. If intelligence is just a matter of software implementation and we already have the mechanism to simulate the programs that constitute human intelligence, then human intelligence can be uploaded in a piece of hardware that is sophisticated enough to run it. Human consciousness will no longer have to depend on a single physical body to continue existing, for it can then be uploaded in a machine and it will continue to function. This phenomenon has been called "digital immortality."

[17] But while this is the case, the reality of the singularity will still depend on whether or not intelligent systems will be able to overcome what Chalmers calls "defeaters":

> As for defeaters: I will stipulate that these are anything that prevents intelligent systems (human or artificial) from manifesting their capacities to create intelligent systems. Potential defeaters include disasters, disinclination, and active prevention. For example, a nuclear war might set back our technological capacity enormously, or we (or our successors) might decide that a singularity would be a bad thing and might prevent research that could bring it about. (Chalmers, "The Singularity: A Philosophical Analysis," 7)

begin the process towards its achievement is the construction of the first-generation AI—the human-level AI. Once the first-generation AI becomes a reality, AI+ will follow and so on. Thus, the crucial consideration here is the possibility of the first-generaton AI. As there are strong supporters of this possibility, there are also its critics. [18] Be that as it may, researches in artificial intelligence and cognitive science continue, [19] thereby maintaining the viability of the computational framework for naturalizing the mind. Finally, if there is going to be an intelligence explosion, when will it likely to happen? Chalmers conservatively estimates that it will still take centuries, [20] in contrast to those who think that it will just be a matter of decades, [21] to construct the first-generation AI. But once the first-generation AI is constructed, Chalmers agrees with those who think that it will not take long, perhaps it will just be a matter of years, for the first-generation AI to construct the AI+ and so on until the singularity.

Conclusion

Given the understanding of the possible death of philosophy as the ontological or axiological death of intellectual philosophy on a global scale, we have shown how this kind of death can come about as a result of naturalizing the mind. This, however, has certain assumptions, some of which, though remaining to be viable, are still contentious. The non-contentious assumptions pertain to the central role of the mind in philosophizing and in the grand project of science to complete its account of the natural world; while the contentious ones pertain to the naturalization of the mind and the computational framework. The philosophical world is still divided on these issues though research in cognitive science and artificial intelligence continue to be vigorously pursued. Now, it may in fact happen that the mind will not be naturalized and so philosophy will not come to an end, or that the mind will not be

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[18] For a discussion of the major arguments for and against the project to naturalize the mind and computationalism, see Part II of Mabaquiao, *Mind, Science and Computation.*
[19] See, for instance, Ben Goertzel, *The Hidden Pattern: A Patternist Philosophy of Mind* (Florida: Brown Walker Press, 2006); and Anders Sandberg and Nick Bostrom, *Whole Brain Emulation: A Roadmap*, Technical Report 2008-3 (Oxford: Future for Humanity Institute, 2008).
[20] Chalmers, "The Singularity: A Philosophical Analysis," 6.
[21] Ray Kurzweil, for instance, predicts that the singularity will occur in 2045. See his book *The Singularity is Near: When Humans Transcend Biology* (London: Penguin Books, 2005).

naturalized and yet philosophy will nonetheless come to an end (perhaps due to some other causes, say human evolution or extinction). What we have demonstrated here is simply the viability of the hypothesis that *if* it will happen that the mind will be naturalized then philosophy will come to an end.

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