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Does the Mind Extend Out into the World

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DOES THE MIND EXTEND INTO THE WORLD?

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ABSTRACT

The extended mind debate juggles the possibilities of whether or not the mind extends out into the world. Today, with the rise in technology, we have an additional claim that our tools are responsible for extending our minds. The internet, smart phones, and other tools give us a foothold in the extended mind debate by providing real world examples of how our mind is perceived as extending out into the world. In discovering where the divide between mind and environment exists we can come up with a conclusion whether or not the mind truly extends out into the world.

INTRODUCTION

When we imagine the possibilities of the extended mind, we tend to wander off to thoughts of telekinesis, mind control, or telepathy. If asked whether the ability to move things with your mind constitutes your mind extending out into the world, a majority of the people would agree that in this case, the mind truly does extend out into the world. However, the world today has given us many opportunities to extend our mind into the world. If I were to implant a device into my head that could turn off all the lights in my house just by thinking, it seems that my mind has the capabilities to extend beyond itself to affect the environment. But how different is it to think about turning off the lights with your mind than having a remote control in your hand? The mind still has the same intent to turn off the lights in both cases, but it is simply the means by which it is accomplished that differs. This difference does not constitute whether the mind extends out into the world since I argue that in both cases, the mind is extending out into the world. Understanding where the boundaries of the extended mind lie will provide a better understanding as to what constitutes the extended mind. Alternatively, perhaps finding no boundaries to the extended mind will provide just as important a discovery.

CHAPTER 1 – WHAT'S THE PROBLEM?

I. THE EXTENDED MIND

Where is the divide between mind and the external world located? The question of the extended mind forces us to investigate how the mind spills out into the world. We are surrounded by a world where devices and electronics aid in our everyday tasks, making life easier. For example, today cell phones allow us to access a worldwide repository of information within seconds. While some skeptics believe that the possibility of the mind extending beyond the brain is a blasphemous idea, many philosophers, such as Andy Clark and David Chalmers, believe that the mind is not confined to such a limited reach. Essentially, the mind extends out into the world.

In our everyday world, we see the results of minds at work. That is, computers, cell phones, eye glasses, etc. all have in common the fact that they originated from the mind. Something must first be conceived of in the mind before it can manifest into the physical. However, does this prove that minds extend into our world beyond the skull and skin of our bodies? This is the most underlying question when dealing with the case of the extended mind. The mind is simply defined as, "the element, part, substance, or process that reasons, thinks, feels, wills, perceives, judges, etc."[1] In our technological ripe age of today, we can see the possibilities that the computer is bringing us. We have

[1] "mind." *Dictionary.com Unabridged*. Random House, Inc. 22 Apr. 2011. <Dictionary.com http://dictionary.reference.com/browse/mind>.

built machines that can reason, perceive, and judge and the thought of artificial intelligence does not seem as "science fiction" as it once was. The mind is beginning to leak out into the world and we can already see it with the new "iPhones" and the ever expanding capabilities of the internet. Computers and microprocessor technology are opening doors to new human biological interfaces that incorporate the mind directly in order to accomplish desired outcomes. For example, the cochlear implant is a fairly new procedure that brings the sense of sound to the deaf or hard of hearing. This device connects directly to the nerves associated with hearing and, in a sense, bypasses the ear to alternatively bring electronic impulses to the nerves. This cochlear implant, also termed the "bionic ear", shows how our tools help us to better extend our minds. However, the extended mind does not need to have a microprocessor chip within it to be considered an extended mind; rather it must simply interface between our mind and the environment.

Allow me to sway your beliefs that mind can exist as an external factor in your everyday lives. Imagine the processes involved in long division. Long division is a fairly simple operation which constitutes multiple steps in order to achieve a solution. This process is not something that we can easily do in our head. In fact, most of us would opt for a pencil and paper in order to perform long division. Specifically, when we perform long division with a pencil and paper, we perform individual calculations which we then externalize as numbers and marks on paper. This allows us to abandon our newly acquired flow of thoughts as we only need to know them until we move on to the next

calculation. These numbers and markings that we make while performing long division seem to be nothing more than external placeholders for the mind. That is, they are an external representation of our mind. Why is it easier to perform long division with a pencil and paper? It is because we allow our mind to extend beyond the confines of our skull and permeate into the world around us. The pencil and paper is a simple example of how our internal processes are indeed externalized when carrying out the task of long division. Clark and Chalmers identify this type of external association as *active externalism* in which the environment of an individual has a potential to function as part of the mind. Additionally, this interaction of mind and environment proposes the idea of a *coupled system* where the mind and external objects work in tandem to perform specific actions. However, in order for something external to constitute being an extension of the mind, the external object must function with the same purpose as the internal processes. Clark and Chalmers claim that,

> "[all] the components in the system play an active causal role, and they jointly govern behavior in the same sort of way that cognition usually does. If we remove the external component the system's behavioral competence will drop, just as it would if we removed part of its brain. Our thesis is that this sort of coupled process counts equally well as a cognitive process, whether or not it is wholly in the head."[2]

According to Clark and Chalmers, the mind is constituted as something which can aid in the cognitive process, neither being exclusively in the head, nor the

[2] Clark, Andy, and David J. Chalmers. "The Extended Mind." *Analysis* 58 (1998): 8-9. *Oxford Journals*. Web. 17 Jan. 2011. <http://www.jstor.org/stable/3328150>.

environment, but instead coupled between the two in its very own form of cognition.

Perhaps you are still skeptical that the mind cannot be an external thing; that everything we perceive to be external is indeed still only derived from the mind. Clark and Chalmers provide a thought experiment in which we can more easily imagine the case of the extended mind. Otto is an individual with Alzheimer's disease who, through means of conditioning, learns to keep pertinent knowledge he acquires in a notebook. His notebook is filled with information that he uses to guide him through tasks which you and I could easily perform by referring to our internal memory in our mind. For example, Otto plans to visit the museum, but does not remember which street the museum is on. Otto must resort to his notebook in order to "remember" which street the museum is on. In his notebook, he sees that the museum is on 53rd Street. Otto must trust his notebook since he cannot discern true memories from false memories. That is, whatever Otto wishes to know or remember, he writes down in his notebook in order to be able to refer to it at a later time. Knowing that Otto can trust his "memory bank", or notebook, Otto can now confidently head over to the museum on 53rd Street since his notebook stated that the museum is on 53rd Street. Otto's notebook is part of his mind. It is an externalized bank of memories which functions with the same purpose as our internalized memories. So why can't the notebook be considered part of Otto's mind when it functions in almost the exact same way as internal memory? This is the question that I raise towards skeptics. The mind can constitute a physical notion such as "brain

substance" or an immaterial concept that we can orchestrate through the manipulating of our environment. I argue that the latter is the case with the human mind. That is, we manipulate external objects in order to extend the potential of our mind.

The idea of the extended mind is not limited to our conscious thinking abilities however; it goes far beyond that. For example, it can be something more peripheral such as a blind person's walking cane. That is, we classify our mind's input through the five senses; sight, touch, taste, smell, and hearing. The blind person, through loss of sight, must rely on the use of the cane to navigate. The mind, after continuous use and familiarity, begins to welcome the cane as one of the senses, specifically an extension of touch. If the blind person's cane is an extension of the sense of touch and the sense of touch is a means of input for the mind, then it seems clear that the mind has a clear connection with the cane and thus becomes part of the mind. Alva Noë, author of the book, "Out of Our Heads" gets straight to the point when he writes, "[t]here is no reason to suppose that the critical boundary is found in our brains or our skin"[3].

[3] Noë, Alva. *Out of Our Heads: Why You Are Not Your Brain, and Other Lessons from the Biology of Consciousness*. New York: Hill and Wang, 2009. 67-68. Print.

CHAPTER 2 – CAN ANYTHING BE EXTENDED?

I. CONDITIONS FOR AN EXTENDED MIND

The most important question dealing with the extended mind involves determining where the limits of the extended mind lie? In order to come up with a set of conditions, it would be best to come up with traits based upon things that we perceive as mind. Memory is inarguably part of the mind and it presents us with some traits which can help us to pin down conditions for an extended mind. Andy Clark and David Chalmers propose several conditions in which something may qualify as being part of the extended mind in their article "The Extended Mind". Their method of finding conditions for what constitutes an extended mind revolve mainly around pinning down the traits which make up something we would agree to be part of the mind, memory, or specifically the "Otto's notebook" case which I mentioned in the previous chapter. The first condition Clark and Chalmers state for the extended mind is that "memory" or some object is "consistently and reliably available and is typically invoked"[4]. Second, "the information in x is easily accessible when it is required"[5]. Third, the object is "automatically endorsed"[6]; that is, in the same way that we come to

[4] Clark, Andy, and David J. Chalmers. "The Extended Mind." *Analysis* 58 (1998): 7-19. *Oxford Journals*. Web. 17 Jan. 2011. <http://www.jstor.org/stable/3328150>.

[5] Ibid.

[6] Ibid.

accept our own memories as true and our own. Lastly, the object has been "consciously endorsed"[7] by the individual at some point, or in other words, the individual is aware of the object and its contents. Clark and Chalmers' conditions cover a wide range of requisites which may constitute an extended mind. Although these conditions provide a detailed description of the conditions of the extended mind, I propose that additional conditions may be required to more concretely identify the extended mind.

In an attempt to address Clark and Chalmers' conditions for the extended mind, I found it beneficial to list several traits which make memory part of the mind. Some of these traits involve being able to access your memory at will, believing information in your memory to be true, being aware of your memories, and being able to adapt or create new memories through new experiences. These traits can be universalized in a sense if we remove the aspect of memory and replace it with a generic "*X*". As a result, a more formal set of conditions for some object *X* to be a mind can be given as follows:

1) X is easily accessible

2) X is believed to be in alignment with one's understanding

3) X's purpose is clearly understood

4) The more experience X receives increases the ability of the individual.

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[7] Clark, Andy, and David J. Chalmers. "The Extended Mind." *Analysis* 58 (1998): 7-19. *Oxford Journals*. Web. 17 Jan. 2011. <http://www.jstor.org/stable/3328150>.

The four conditions I mentioned above present similarities with Clark and Chalmers' conditions. However, the difference between the two lies in my fourth condition; the more experience X receives results in an increase in the ability of the individual. This condition incorporates some additional aspects of the mind which is not present in Clark and Chalmers'. That is, the mind is in an ever-changing, plastic state of adapting to new experiences. It is this constant flux that allows the mind to extend into the world and to permeate our surroundings. This adaptability of the mind is what allows our mind to interact with our environment. Now if we apply this condition to the "Otto's notebook" case, we can see that the contents in Otto's notebook adapt to new information which Otto receives, or similarly, Otto's ability grows with the more experience the notebook receives. This underlying factor of the mind's adaptability presents us with an interesting idea which is not present in Clark and Chalmers' conditions. To further investigate whether this adaptability condition holds true, we can apply it to an array of objects which we can then determine whether it is truly an extension of the mind.

II. ADAPTIBILITY OF THE MIND

The first objects I would like to introduce are glasses. The case of glasses presents an interesting example because we are unsure of whether we can constitute them as being of the mind or not. That is, they merely seem to be tools which alter our perception of the environment. However, imagine a cyborg that may contain an advanced infrared vision device. The infrared vision not only alters the perception of the environment for the individual, but it expands

the ability of the mind to perceive new information that was never available to a normal human being. It intuitively seems that the cyborg would qualify for the case of the extended mind. However, glasses can be perceived as a primitive form of infrared vision which practically has the same underlying function, altering the perception of the environment. The argument of infrared vision also holds for glasses as well. That is, glasses also expand the ability of the mind to perceive new information that is not available to certain individuals, specifically individuals with poor eyesight. Additionally, we can apply the conditions which I aforementioned to the case of glasses to determine its status of an extended mind. Glasses are easily accessible in that they are worn on the face, in front of the eyes. Second, the information presented by the glasses is believed to be in alignment with the individual's understanding, or in other words, the individual believes the information presented by the glasses to be true. Third, the purpose of the glasses is understood by the individual. Lastly, the more an individual wears glasses, the greater the ability of the individual becomes. The case of glasses presents us with an example of an extended mind based upon the conditions presented. Moreover, I want to take this example one step further and suggest the idea of contact lenses. Contact lenses are a great example of how technology is shaping our world by incorporating tools that seem to disappear even while we use them. These invisible applications are making it easier to claim that an extended mind exists since they work "behind the scenes", similarly to how the mind perceives to work. The case of contacts versus glasses represents the example of how we are more able to produce

"tools" which can become transparent. That is, the more transparent a tool becomes, the less we see the need of the individual to adapt to it. However, it does not stop there. It is easy to imagine a wide range of objects which subsequently fall under the category of an extended mind.

I would like to reintroduce the example of the pen and paper. If one were to test whether the conditions of the pen and paper fall under the conditions for the extended mind, they would find that it indeed does. This is similar with the blind person's cane, the cellphone, and an artist's sketchpad as well. Andy Clark, in his book *Natural-Born Cyborgs*, categorizes these types of objects as "transparent tools"[8]. The idea behind transparent tools involves a shift from the "technology-centered" products to the "human-centered" products. Clark gives an example of this by portraying the shift from town clock towers to common wristwatches. As technology advances, tools which are too big to be "easily accessible" start to become smaller and more personal. These shifts towards tools which are "transparent" in their nature allow us to develop a closer relationship to them, creating the possibility to extend our minds.

Allow us to examine the case of something widely used by millions of people and determine whether it constitutes an extended mind. I propose the case of Google Maps. Imagine you are driving along the freeway and suddenly you hit traffic. Since you hate sitting in traffic you decide to take out your phone, which has Google Maps on it, in order to see how much traffic there is

[8] Clark, Andy. *Natural-born Cyborgs: Minds, Technologies, and the Future of Human Intelligence*. Oxford: Oxford UP, 2003. 38-39. Print.

between you and your destination. While on Google Maps, you are notified that an alternate route exists which would get you around the traffic and to your destination faster than waiting in traffic. This account of Google Maps, which aids in your decision making, is a bit more difficult to pin down as being part of the extended mind. If we apply the conditions of an extended mind to Google Maps, we can see that it is easily accessible; it is believed to be in alignment with one's understanding; its purpose is clearly understood; and the more experience it receives increases the ability of the individual. That is, Google Maps relies on data provided by other individuals using Google Maps in order to constantly keep an update on traffic speed, accidents, and so on. The more Google Maps is used, the greater the function it provides. So, Google Maps qualifies as being part of the extended mind.

I claim adaptability of the mind is a big factor in the ability for the mind to extend out into the world. This can be seen almost every day with people that attend therapy sessions for prosthesis, injuries, etc. in that they must learn to adapt their mind to the changes they are forced to endure. For example, an individual who is a leg amputee becomes aware of the sudden changes in their ability to walk. Their mind has been so conditioned to the fact that once a leg used to be where there is now a prosthetic. This individual attends therapy sessions in order to recondition the mind in order to begin to adapt to the new prosthetic. We can infer that the more experience the prosthetic receives, the ability of the individual begins to increase. This prosthetic begins to become part of the individual. It is as if the mind begins to extend itself into whatever

we condition it to become; in this case, a prosthetic leg. Once the individual becomes attuned to the new prosthetic leg, it becomes second nature. However, this trend can be seen in more than just prosthetics. Going back to the pencil and paper example, we are all aware that it took conditioning to learn how to write, we see it with all the kindergarteners and first graders who practice their scribbly letters in order to perfect the skill. It takes conditioning to adapt our mind to accept a new form of interacting with our environment and through this process we consequently extend our minds into the environment. It is this aspect of adaptability that I believe Clark and Chalmers overlook into the aspect of the extended mind. Although their conditions present us with a way to more easily identify the aspects of an extended mind, there is a quality to the adaptability of the mind that is seen in all the examples of the extended mind. Additionally, with the introduction of "transparent tools" we can see that there is a slightly smaller margin for adaptability of the mind since it seems to interact with our mind in such a fluid fashion; such as the case with contact lenses. It doesn't take much conditioning to adapt to the contact lenses since they almost instantly benefit the wearer. The contact lenses are a good example of how we are beginning to interface our own biology to make these "transparent tools" more easily adaptable.

III. OBJECTIONS TO THE EXTENDED MIND

As intriguing as the thought of the extended mind sounds, there exist those who argue against the notion of the mind extending out into the world. Fred Adams and Ken Aizawa, in their book The *Bounds of Cognition*, state that although a possibility such as "transcranial cognition"[9] (the extended mind) may exist; the cases we are presented with do not fulfill the requirements. Adams and Aizawa claim that the pen and paper are merely tools which allow us to work around our cognitive limitations. These "cleverly designed non-cognitive tools"[10] aid in our cognitive processes, but do not constitute being part of the extended mind. In their defense, Adams and Aizawa state that, "cognitive processes are so different from the physical process in the tools we use that a science that ignores this difference essentially ignores cognition.[11] The cognitive process is functionally different than that of tools in that the cognitive processes involve non-derived content whereas tools are only representations of derived content. Their hypothesis states that if we are to find the bounds of cognition, it must be through determining the mark of cognition. This mark of cognition is their basis for determining whether or not it is possible for the mind to extend out into the world. That is, they claim that the mark of cognition is nowhere to be found in our world other than in our very brains. Adams and Aizawa take a very literal approach to the idea of cognition in that it must act in

[9] Adams, Frederick, and Kenneth Aizawa. *The Bounds of Cognition.* Oxford: Blackwell, 2008. Pg 1. Print.

[10] Ibid.

[11] Ibid., 5.

the same exact way as the human mind in order to constitute being of the mind. I claim that cognition does not necessarily need to be similar to the cognition of the human mind, but rather cognition coupled with an outside factor that fulfills the conditions of an extended mind. Although Adams and Aizawa are correct in that the cognitive process is non-derived, there is an alternative view that tools are simply externalized ideas.

While addressing the philosophical implication of tools, James Feibleman states in his article, "The Philosophy of Tools", that "[…] it is possible to measure the degree of a civilization by its proliferated use of tools […]"[12]. Viewing the question of whether the mind extends beyond the body in a wider view, namely civilizations, we can denote that a civilization's development can be measured by their use of tools. Additionally, Feibleman states that, "[…] tools are particular and concrete ideas which have been externalized and fixed".[13] Tools originate in the mind since they first must be conceived by the mind. Thus, a civilization can be measured based upon how far they have extended their mind into their environment. This implies that the modern day civilization has advanced further than any other civilization based upon our ability to extend our mind, or to create complex tools and this indeed seems to be true with the invention of the internet and cell phones. With the invention of different tools, we can more efficiently complete tasks at a fraction of the time. These advancements allow us to perform more complex tasks which could not

[12] Feibleman, James K. "The Philosophy of Tools." *Social Forces* 45.3 (1967): 330. *JSTORE*. Web. 22 Feb. 2011. <http://www.jstor.org/stable/2575191>.

[13] Ibid., 332.

have been possible without the help of tools. It is our tools which allow us to expand our minds, and it is our tools which allow us to extend our minds. Additionally, Clark claims that the cognitive process is indeed similar to the tools we use, "[if], as we confront some task, a part of the world functions as a process which, were it done in the head, we would have no hesitation in recognizing as part of the cognitive process, then that part of the world is (so we claim) part of the cognitive process.[14] I will argue that the cognitive process of mentally performing long division in the mind is, in a sense, different from the cognitive process of performing long division with a pencil and paper, but the outcome of this cognitive process is the intriguing part of this thought experiment. Imagine when you perform long division in your mind, you must be careful not to scramble the constantly changing numbers in your head. It begins to become burdensome if you are asked to perform this process repeatedly since your mind has a tendency to forget some of the numbers which you store in your mind. Now imagine your cognitive process while performing long division with a pencil and paper. The cognitive process involved in long division with a pencil and paper is much less straining on the mind, since you do not need to constantly remember numbers in your mind. Ultimately, we can see that with the simple addition of a pencil and paper, performing long division not only reduces the strain on the cognitive process in the mind, but allows the process to be completed more quickly and more easily. Adams and Aizawa address this concern in their book by stating that when one uses a pencil and paper, "[…]

[14] Clark, Andy, and David J. Chalmers. "The Extended Mind." *Analysis* 58 (1998): Pg. 8. *Oxford Journals*. Web. 17 Jan. 2011. <http://www.jstor.org/stable/3328150>.

one deploys a different set of cognitive capacities than that deployed in performing the computation in one's head" Although they claim that the pencil does not denote any "mark of the cognition", it is easy to see that the addition of the pencil and paper makes a significant difference in the cognitive process overall. It is this difference that denotes something greater than the "mark of the cognitive". Perhaps we are beginning to understand that the mind extends out into the world.

Several philosophers apart from Clark and Chalmers, such as Daniel Dennett, have taken sides against Adams and Aizawa by suggesting that the brain and its "paraphernalia"[15] should be viewed as a single cognitive system. Dennett explains his views on why we humans maintain our intellectual superiority over animals:

> "[…] our habitat is *offloading* as much as possible of out cognitive tasks into the environment itself – extruding our minds (that is our mental projects and activities) into the surrounding world, where a host of peripheral devices we construct can store, process, and re-represent our meanings, streamlining, enhancing, and protecting the process of transformation that are our thinking. This widespread practice of offloading releases us from the limitations of our animal brains"[16]

Dennett is proposing the idea that humanity is able to maintain our intellectual properties through our ability to incorporate our surroundings into our activities. Perhaps it would be easier to imagine the human as a computer since

[15] Dennett, Daniel Clement. *Kinds of Minds: toward an Understanding of Consciousness*. New York, NY: Basic, 1996. 134-135. Print.

[16] Ibid., 44.

much of what a human does is more or less synonymous with a computer. A computer is made up of components; much like a human is made up of different organs. First, there is the hard drive which is the primary placeholder of memory for the computer. Much like the memory portion of the brain, the hard drive stores and recalls information almost constantly. The next component of the computer is the central processing unit, or the CPU. The CPU is analogous to the cognition of the mind. It processes information being retrieved from the hard drive and rewrites new information, constantly updating its current state to perform the requested tasks. With the recent advances in computer technology, computers have incorporated a system which makes it possible to process multiple tasks at once by incorporating additional "cores" to the CPU. However, the single core CPU best models the human brain and will be what I focus on for this thought experiment. This single core CPU can only process one task at a time by referring to its RAM, or random access memory. RAM is similar to the short term memory in the brain; it is quickly accessible and is constantly being referred to. In order for a computer to continually process more than one task at a time, it must offload the tasks to its memory in order to address the additional tasks. Without this ability to offload information, the computer becomes slow and almost unusable. This process sounds surprisingly similar to the process of the human mind in that our ability to process multiple tasks at the level we do is only possible by our ability to offload our mind; to extend our mind into our environment.

Merlin Donald, whose theory deals with the evolution of the human mind, argues that the cognitive evolution of humans last took place nearly 40,000 years ago. This evolution was sparked by the first use of "[…] visuographic representations in the form of body decorations, grave decoration, and object arrangement […]"[17] which acted as a type of memory store. This new way of storing information began to constitute a new cognitive form of thinking. With this leap in cognition, Donald argues that the australopithecines[18] made a great stride towards becoming the *Homo Sapiens* of today. It begins to depend on how one views the argument of the extended mind. If someone, such as Clark and Chalmers, perceive the use of tools or something as simple as an exogram on a cave wall as the ability to extend one's mind, then what we acknowledge as part of the extended mind has simply become second nature to our everyday experiences. That is, perhaps opponents to the extended mind case are living in denial of the fact that humans have been extending their minds as far back as the beginning of human history and it does not necessarily line up with their view of the extended mind.

Additionally, a possible objection to the extended mind deals with the problem of sharing minds. If we imagine the case with Otto's notebook, we can see that Otto's memories are vulnerable to being shared with others. Does the issue of sharing minds pose a threat to the conditions of the extended mind? I claim that sharing of the mind is not an unusual aspect and therefore does not

[17] Donald, Merlin. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge, MA: Harvard UP, 1991. 273-274. Print.

[18] A bipedal hominid existing nearly 4 million years ago which is now extinct, but carried ancestral links to *Homo Sapiens*.

alter the conditions for the extended mind. People are sharing their minds all the time. They do this whenever they talk with one another. A conversation is a sharing of words and words are formed in the mind, therefore a conversation is the interaction between minds. This conversation type of sharing the mind is no different from that of Google Maps or even the internet. The internet is simply a large conversation between computers. Although there exists a concern with privacy of two or more people that literally share a mind, the privacy involved in the conversation type of sharing the mind is dealt with by simply filtering what you say. The same thing can be said for computers and the internet. That is, Otto has the option to share his memories with others by simply lending them his notebook or to withhold his memories by safeguarding the notebook. Although Otto is more vulnerable in that his memories can be "stolen", it does not affect the case of the extended mind. That is, it does not make it that his notebook is not part of his mind since it is vulnerable to theft. It would be equivalent to saying that someone's memory is not part of their mind since it is possible one may experience brief amnesia. Ultimately, the idea of a massive sharing of the mind does not inhibit the conditions for the extended mind.

CONCLUSION – WHAT'S NEXT?

I. IMPLICATIONS OF THE EXTENDED MIND

Understanding and analyzing the extended mind gives us a perspective on how we are able to manipulate our environment in order to incorporate our minds. By referring to several of the examples which I mentioned above, we can see that there exists a relationship between how our mind interacts with our environment. The "closeness" of this interaction is based on the adaptability of the mind. As our tools become more and more sophisticated, there is a trend which is slowly closing the gap between the amount of conditioning needed to adapt to certain ways of extending the mind. For instance, the car has evolved from the "manual" clutch to an "automatic" clutch which gives the user less responsibility when dealing with the process of driving a car. This offloading of responsibilities shows how we are able to maximize our productivity so we have no problem keeping one hand on the steering wheel and the other on a sandwich. However, it is interesting to investigate the adaptability of the mind since less and less of it is needed as more and more of our technology takes advantage of the ability to extend our mind. This trend appears to be working its way up to reach a sort of autonomy in our tools where we will only slightly have to acquaint ourselves with the user interface of the object in order to fully benefit from it.

Perhaps when we reach the level of artificial intelligence, we will once and for all be able to come to a conclusion about the ability of our minds to extend out into the world. That is, a robot with human intelligence has an advantage over humans in that it will be able to communicate directly with computers and components while we as humans only have an intermediary mouse and keyboard in most cases to communicate with a computer. The robot with human intelligence will be able to extend its mind into the world through the use of the internet and networks. Perhaps what we will learn from the robot with human intelligence is that we are far less effective at extending our mind than the robot, but if we find that it is possible with the robot to extend the mind, we are given a new field of research to investigate in order to be able to fully extend our minds into the world. So, we can see that as the advancements in technology come about, our ability to extend our minds starts to become more and more second nature.

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