

Christianity and the Extended-Mind Thesis

The extended-mind thesis belongs to cognitive science. Although the background assumptions of cognitive science are far removed from those of Christianity, Christians may wonder whether the Extended-Mind thesis is even compatible with Christianity. Investigation of the compatibility of Christianity and the Extended-Mind thesis is made more difficult by the fact that there is not just one thesis labeled ‘the Extended-Mind thesis’, but at least two theses to be disentangled.

The family of theses called ‘the Extended-Mind thesis’ share, I believe, an assumption. The common assumption is that

...certain forms of human cognizing include inextricable tangles of feedback, feedforward, and feed-around loops: loops that promiscuously criss-cross the boundaries of the brain, body, and the world. The local mechanisms, if this is correct, are not all in the head. Cognition leaks out into body and world. (Andy Clark 2008, xxviii)

I’ll call the general approach to the mind as having the capacity to extend out into the environment, beyond the brain and body, ‘EM’ for ‘The Extended-Mind Thesis.’ EM is really a family of theses that has two main branches—claims about cognitive processes and states and claims about the subjects of those processes. Neither of these claims is straightforwardly confirmable or disconfirmable, inasmuch as both concern how to conceptualize processes and their subjects. What is new about EM are not empirical data, but how to think about the data.

After saying what I find appealing in EM, I shall suggest what a Christian like me might say about several versions of EM theses. Then, I'll make an important distinction that I think has not been given enough attention in cognitive science—a distinction between personal and subpersonal levels of reality. I'll use the personal/subpersonal distinction to show how what I find appealing in EM can be accommodated by Christians.

Now turn to some features of the extended-mind thesis that some find attractive. First, EM makes it essential to us that we have bodies, but not that we have the all-organic bodies that most of us now have. Second, EM emphasizes our integration into our environments. As an externalist in philosophy of mind, I believe that our intentional mental states are ontologically dependent on the environment (Baker 2007a; Baker 2007b); this externalism is congenial to the hypothesis that many physical mechanisms of mind are not all in the brain. Third, EM leads to a way to understand the amazing innovations of biotechnology. Recent advances in biotechnology—from cochlear implants, to all manner of brain-machine interfaces that allow monkeys to move paralyzed limbs at will—suggest that the physical mechanisms of mind need not all be organic either. The increasing integration of the biological with the nonbiological makes the line between them very faint. Here are a couple of examples:

Graeme Clark, inventor of the cochlear implant, envisions new field of “medical bionics” which will produce, among other things, bionic nerve and spinal repair for paraplegia and quadriplegia, a bionic eye for blindness, bionic bladder neck for control of incontinence, bionic muscles and implantable bionic sensors.(Graeme Clark 2007, 78)

Another fertile ground concerns on brain-machine interfaces. John Donoghue has developed a neural implant—a “neuromotor prosthesis”—and connects them to a robotic prosthesis that will allow a paralyzed patient to move her limbs. “We’re effectively rewiring the nervous system—not biologically but with real wires,” says Donoghue. (Sender 2004, 74-75)

Like the Copernican hypothesis and numerous other surprising empirical hypotheses, the hypothesis that the mechanisms of cognition may have components that are not neural, and not even biological, should be dealt with by Christianity. I want to show how one version of the Extended-Mind thesis may be used to accommodate biotechnology in a way that is compatible with Christianity. To do this, I’ll canvass the two main streams of EM.

Two Versions of the Extended-Mind Thesis

The EM family all endorse the claim that our minds and the cognitive processes and states that constitute them extend beyond our brains and bodies. The locus classicus of this thesis is “The Extended Mind” by Andy Clark and David Chalmers in *Analysis* in 1998. Clark and Chalmers colorfully put forward a Parity Principle, which is a mainstay of the extended-mind thesis:

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*...part of the cognitive process. Cognitive processes ain’t (all) in the head! (Andy Clark and Chalmers 1998, 8)

Clark and Chalmers extend this claim from cognitive processes to cognitive states, like belief. The paradigmatic example concerns a character called ‘Otto’, who has suffered neural damage and cannot form new memories. So, he writes down what he wants to remember in his notebook, which contains the information that in other people is stored in brain-based memory. Walking down Fifth Avenue in New York one day, he wants to go to MoMA. He automatically looks in his notebook and retrieves the address of MoMA. The information he needs “is reliably there when needed, available to consciousness and available to guide action, in just the way that we expect a belief to be.” (Andy Clark and Chalmers 1998, 13) Otto’s notebook plays the same causal role in his cognitive economy as parts of your brain plays in your cognitive economy.

The extended-mind thesis rejects the traditional “brainbound” view that “locates all our mental machinery firmly in the head and central nervous system.”(Andy Clark 2008, 82) By contrast to the traditional view, the extended-mind thesis allows “at least some aspects of human cognition to be realized by the ongoing work of the body and/or the extraorganismic environment.” (Andy Clark 2008, 82) Again, EM is the modal claim that it is possible that a human mind is not bound by brain or skin.

The EM family comprises two kinds of theses: one concerning systems that may have biological and nonbiological components, the other concerning processing and states of these systems. “Extended minds” may be extended—i.e., not bound by brain and skin—in either way, either as extended systems or as extended processes and states. So, we can distinguish two kinds of EM-theses:

The extended-systems thesis (ES): Cognitive systems need not be confined to

brains or human bodies, but may spread out into the environment. Cognitive systems have no privileged parts that could be unified subjects of the cognitive processes.

The extended-cognition thesis (EC): Cognitive processes and states may be spread out into the environment. What is extended is just the cognitive loop of causally connected elements that may extend into the world.

(ES) concerns material things (systems), and (EC) concerns properties of material things (processing, states).

It may be thought that EC entails ES, but that is not the case. EC is compatible with a number of views on the subjects of these processes. EC and ES are conceptually and logically distinct, as a number of cognitive scientists would agree. For example, Robert Wilson appeals to mental states that are “larger than individual organisms;” although, he says, mental states may be locationally wide, extending into the world, the subject of those states remains the individual organism. (Wilson 2004, 197-8) And Susan Hurley and Mark Rowlands also distinguish between the extended-mind thesis as a thesis concerning processing and as a thesis concerning the subjects of these processes. (Rowlands 2009, 629; Hurley 1998, 36) So, one can hold EC without holding ES. In any case, we can consider ES on its own since, as we shall see, some philosophers do seem to take us to be extended systems in the sense of ES. I shall discuss these first.

Extended Systems and Christianity

Full disclosure: “Persons and the Metaphysics of Resurrection” (Baker 2007d) argues that Christians should not be committed to the view that human beings have immaterial souls: human beings are persons constituted by, but not identical to, bodies. (Baker 2007c) However, for purposes here, I do not begin with specific assumptions about what we are.

Clark and Chalmers suggest that the Extended-Mind Thesis does not stop with subpersonal items—processes, states, vehicles of content—but goes all the way to the personal level, to the person, the self, the agent: “...Otto *himself* is best regarded as an extended system, a coupling of biological organism and external resources.” (Andy Clark and Chalmers 1998, 18) More recently, Clark said, “Otto-and-his-notebook exhibit enough of the central features and dynamics of a normal agent having (amongst others) the dispositional belief that MoMA is on 53rd St. to warrant thinking of him as such.” (Andy Clark 2005, 7) On ES, biological entities can “couple” with nonbiological entities in the environment, and coupling may result in a cognitive system with biological and nonbiological parts. We are “creatures whose minds are special precisely because they are tailor-made for multiple mergers and coalitions.” (Andy Clark 2003, 7) Instead of a unified subject of processing, ES recognizes only systems that may not be “brainbound” or “skinbound”.

Another image that is frequently used by proponents of ES is that we are just “grab bags of tools.” As Clark put it: “We have been designed, by Mother Nature to exploit deep neural plasticity in order to become one with our best and most reliable tools....Tools-R-us, and always have been.”(Andy Clark 2003, 6-7) Indeed, Clark suggests, we should abandon “the seductive idea that all these various neural and

nonneural tools need a kind of privileged user. Instead it is just tools all the way down.” (Andy Clark 2003, 136) According to Daniel Dennett, another proponent of ES, we are (in Clark’s words), only “a grab bag of tools and an ongoing narrative: a story we, as the ensemble of tools, spin to make sense of our actions, proclivities, and projects.”(Andy Clark 2003, 138)

ES construes “the extended mind [to] imply an extended self.” (Andy Clark and Chalmers 1998, 18) As Chalmers says in his Foreword to *Supersizing the Mind*, “a sort of two-way coupling between organism and environment...is at the heart of the extended mind thesis.” Although Chalmers goes on to say that he “tentatively conclude[s] that the extension of the mind is compatible with retaining an internal conscious core,” he does not elaborate. (Clark 2008, xv) Moreover, Clark developed the idea that we are “natural-born cyborgs.” Natural-born cyborgs are “systems continuously renegotiating their own limits, components, data stores, and interfaces.” (Andy Clark 2008, 42) So I shall construe ES to to be an interpretation of EM that is

a kind of no-self (or nearly-no-self) theory, according to which (what we ordinarily think of as) the self is a hastily cobbled together coalition of biological and non-biological elements, whose membership shifts and alters over time and between contexts. (Clark 2004, 177)

I take ES to be a thesis about how to understand what we are—we readers of this sentence—and I take ES to hold that we are extended systems. When we are born, we do not (yet) have any nonorganic parts; but over time we acquire and lose nonorganic parts. If a system is individuated by its parts, then we are not a single extended system, but rather a (rather haphazard) series of extended systems. If I understand correctly,

according to ES, we are series of extended systems (often scattered objects) that process information and have cognitive states without there being any privileged element that is the subject of the processing.

Is ES compatible with Christianity? Although I believe that Christianity is compatible with a number of different conceptions of what we are, I also believe that there is a constraint on the conceptions of the human person that are compatible with Christianity. The constraint is fairly broad—indeed, broad enough to be endorsed by secular humanists and atheists. The constraint that Christian (and other humanistic) conceptions of human persons impose is that human persons can act intentionally and reflect on what they do; in short, Christianity takes human beings to be reflective and responsible agents. Although I shall not argue for it here, I believe that Christianity can get along without attributing to us a self (or soul) as an inner part, and that it can (and should!) get along without attributing to us libertarian free will. Nevertheless, Christian doctrine cannot get along without regarding us as reflective and responsible agents.

Here are some well-known features of how Christianity sees human persons: Human persons are sinners, who are called to repentance and are subject to judgment. A sinner is an agent; she does things intentionally. A sinner who repents must sincerely regret what she has done. To sincerely regret what one has done, one must be able to reflect on her experience.

The stories of Christianity continually take human persons to be reflective and responsible agents. The Old and New Testaments are riddled with examples. Cain killed Abel and later was questioned by God; Jacob stole his brother's birthright; Noah built an

Ark and saved a pair of each species; Judas betrayed Jesus and later hanged himself—these are all examples of responsible agency. There are also countless examples of being reflective agents: David said, “O Lord my God, I cried to thee for help, and thou hast healed me.” (Ps 30: 2) The Virgin Mary thought that God had looked with favor upon her. Paul said, “I am...unfit to be called an apostle, because I persecuted the church of God.” (I Cor 15:9) So, through and through, Christianity takes us to be responsible and reflective agents.

What does it take to be a reflective and responsible agent? Although this is a difficult question, I think that there is a clear necessary condition for one to be a reflective and responsible agent: The same person who is held responsible must realize that she herself does or has done things intentionally. To realize that one does or has done things intentionally, one must have a robust first-person perspective. She must be in a position to affirm: I know that I—I, myself—do things intentionally. One must be able to refer to oneself without the aid of a name, description, or third-person pronoun. A robust first-person perspective is also a necessary condition for being a reflective being. “I know that I saw a light.” “I know that I was saying my prayers.” On my view, a robust first-person perspective is a defining characteristic of human beings. (Baker 2000; Baker 2007c) It is also a necessary condition for being a reflective and responsible agent.

Does ES have room for reflective and responsible agents? Could “a hastily cobbled together coalition of biological and non-biological elements, whose membership shifts and alters over time and between contexts” (Clark 2004, 177) be a reflective and responsible agent? I do not see how: Suppose that while the notebook was guiding the

extended system (Otto-and-his-notebook) to MoMA, the extended system mugged someone. For Otto to be responsible, he—an extended system with organic and inorganic parts—would have to be able to reflect on what he did. But if, as ES would have it, Otto is nothing but an assemblage of organic and inorganic parts, with no part privileged, there is no subject to do the reflecting. The standard move by some cognitive scientists here is to agree that there is no subject, and to try to explain (perhaps by invoking a “user-illusion”) how it could *seem* that there are subjects of reflection. I have argued against such cognitive scientists in Baker 2007d, Baker 2009, and Baker forthcoming. Suffice it to say that we have no idea of how an extended system—an assemblage of organic and nonorganic parts with no privileged part—could reflect on itself. And if the extended system cannot reflect on itself, it cannot be a responsible agent.

Someone may object that if an extended system that has a part (organic Otto) should be held responsible, then the whole extended system should be held responsible. Not only does it seem ridiculous to hold Otto-and-his-notebook responsible, but also that suggestion is inconsistent with EM.

In the first place, the objection makes an unextended human being (organic Otto) “a privileged user”—the one whose responsibility is to be attributed to the whole system. And as we have seen, ES denies that any of the components of an extended system is in a privileged position. We are just grab bags of tools with no privileged user.

In the second place, the suggestion is ad hoc and not generalizable. Some extended systems have more than one unextended human being as a component. There is

social extension as well as physical extension. For example, “the waiter at my favorite restaurant might act as a repository of my beliefs about my favorite meals.” (Andy Clark and Chalmers 1998, 17-8) In this case, the waiter and I are a transitory extended system. Suppose that while the waiter is recalling my favorite meals, I repent of something, and the waiter never repents of anything. If I repent and the waiter does not, then it is false that the extended system—the-waiter-and-I—repented. Hence the suggestion that if a proper part of an extended system repents, then the extended system repents leads to contradiction.

In sum, an extended system with no privileged parts has no a robust first-person perspective and thus cannot be a reflective and responsible agent. So, ES seems incompatible with Christian doctrines about human persons.

Let me conclude the discussion of ES by emphasizing that, perhaps surprisingly, ES is also incompatible with secular humanism or any atheistic view that takes us to be reflective and responsible agents. Acknowledgment of agency is not specific to Christianity or to any religious view. Regardless of Christianity, seeing “agents themselves as spread into the world” (Andy Clark and Chalmers 1998, 18) or as “hastily cobbled together coalition of biological and non-biological elements, whose membership shifts and alters over time and between contexts” is a nonstarter.

But ES is not the only way to interpret the extended-mind thesis. Let us turn to the more plausible EC.

Extended Cognition and Christianity

The core idea of EM is that human cognizing concerns “inextricable tangles of feedback, feedforward and feed-around loops that promiscuously criss-cross the boundaries of brain, body and world.” (Andy Clark 2008, xxviii) The cognitive processing of Otto’s finding the location of MoMA loops from neural processes through visual processes to motor processes that manipulate the notebook and back through the various to neural processes again. The fact that the processing does not take place entirely in the brain is irrelevant to its outcome: Otto now knows how to find MoMA just as if he had remembered it.

Cognitive processing, of the sort that finds MoMA for Otto, is *subpersonal* processing—whether it takes place wholly in the brain or not. Brains are as subpersonal as notebooks. As long as the various mechanisms (the brain alone or in concert with the notebook) play the functional roles that lead to Otto’s learning MoMA’s location, it does not matter where those mechanisms are located. And it does not matter whether there are artifactual as well as organic links in the causal chain. Although what cognitive science has to tell us is primarily subpersonal, the concern of Christianity for human persons is *not* primarily subpersonal: What Christianity cares about is that persons are sinners, who repent and are forgiven, and, Christians hope, are resurrected after death. What Christianity has to say to people is all at the *personal* level.

Your brain’s normal functioning, or your cochlear implant’s stimulating your auditory nerve, or your leg’s moving while you walk to the bank are subpersonal-level phenomena. Your thought about the political situation is at the personal level. On my view, personal-level phenomena are *constituted* by subpersonal-level phenomena, without being identical to the constituting subpersonal-level phenomena. (Baker 2007c,

111-116) Whatever physical phenomena—whether wholly in your brain or not—constitutes your thinking is at a subpersonal level. The vehicle that carries your thought—whether in your brain, body or environment—is subpersonal. Remembering and believing are personal-level phenomena; the functioning of the mechanisms of memory and belief are at the subpersonal level. Doing what you want to do is at the personal level—indeed, doing what you want to do is at the level of agency; proper neural functioning (motor control) required for doing what you want to do is at a subpersonal level. Finding the location of MoMA is at the personal level; cognitive processing is at a subpersonal level. If we are to understand reality, it is crucial to keep straight which levels we are talking about.

Since the terms ‘information-processing’ and ‘cognition’ are often used for phenomena at both personal (moving the cursor) and the subpersonal (a process in the brain), it is easy to conflate the personal and subpersonal levels, or to see levels only as different ways to describe the same phenomena rather than to see levels as ontologically distinct. In *The Metaphysics of Everyday Life* (Baker 2007c, 234-239), I argued that there are indefinitely many ontologically distinct levels. So, taking the personal and subpersonal levels to be ontologically distinct, and not just levels of description, I want to suggest that EC should be interpreted at a subpersonal level, and thus that this version of EM is compatible with Christianity, the concern of which is at the personal-level.

To make EC compatible with Christianity, we should clearly distinguish EC from ES: EC can allow objects in the environment to be part of x’s cognitive processing without being part of x. For example, on a construal of EC that is compatible with Christianity, the notebook is a part of Otto’s cognitive processing without being a part of

Otto.

We can make this plausible by requiring that parts of a person's body be causally integrated with other parts and more or less permanently attached. So, in order to be part of Otto, the notebook would have to be causally integrated into Otto's subpersonal parts more permanently. On this view, the result of implanting a neural device would be to give someone a new body, a hybrid—part organic and part bionic—a replacement of his old biological (animal) body. A bionic eye would have the same effect and be part of a new hybrid body; but putting on eyeglasses would not result in a new body. Wearing glasses is too transitory. So is using a notebook for memory storage.

So, I think that a person's body has parts that are more-or-less permanently attached and causally integrated with the person's other parts. But the parts of a person's body need not all be organic as long as they are suitably related to each other. This construal of EC seems to fit with our conception of the body of a human being.

I take the success of brain-machine interfaces and neural implants to be conclusive evidence that the (subpersonal) physical mechanisms of cognition can include nonbiological as well as biological items and that some persons today have nonorganic components in their brains and bodies. So, I think we need to make room in our religious views for people just like you and me, except that various of their mental and physical activity requires machines. The line between the biological and the nonbiological becomes fainter with increasing integration.

The Upshot

Our conscious mental lives are at the personal level: we say our prayers, we balance our checkbooks, we find the location of MoMA. These mental phenomena are made possible by machinery at the subpersonal level. Instead of referring to Otto's notebook (a material object), we can refer to the processing loop that includes a state of the notebook, and an interaction between Otto's visual system and the relevant state of the notebook. But the notebook is not thereby a part of Otto. (The claim that the notebook is a part of Otto or his body moves to a version of ES, not of EC.) What EC adds to the traditional view is that subpersonal processing may have parts that are not parts of the brain, or even of the person whose processing it is.

The point is this: It does not matter *how* the processing is done and what subpersonal items (brain, notebook) it involves. It does not matter how Otto finds the location of MoMA as long as he finds it. The subpersonal processing is the machinery by which we, e.g., say our prayers or balance our checkbooks or find the location of MoMA. That we do things these is at the personal level, the level of Christian concern. How we do them is at the subpersonal level.

As mentioned earlier, Christianity takes us to be reflective and responsible agents. If brainbound people are reflective and responsible agents, so are people with extended cognition (where EC is clearly distinguished from ES). The subpersonal features of our mental lives—the machinery that makes them possible—just seem irrelevant to Christianity. As long as we are reflective and responsible agents, there is no problem for Christianity. Indeed, perhaps our being such agents, or perhaps our having the robust first-person perspectives necessary for being such agents, is evidence of our being made in God's image. So, EC does not seem at odds with Christianity.

It seems to me fine for a Christian to hold that some personal-level mental states and processes have subpersonal vehicles with nonbiological parts—whether these parts are neural implants, brain-machine interfaces, robotic limbs or wireless transmitters to computers. Such a person is constituted by a body that has both organic and nonorganic parts. Indeed, it seems not much of a stretch to suppose that with enough bionic parts, one’s body would not be an animal body at all. But if one’s first-person perspective remained intact, one would continue to exist—but constituted by a nonorganic body.

This possibility seems very congenial to Christian doctrine. The doctrine of resurrection is a doctrine of *bodily* resurrection, and unlike organic bodies, the resurrected body is to be incorruptible. (I Cor. 15) God could, of course, transform our corruptible organic (or bionic) bodies into incorruptible bodies, to do so would be to change the corruptible bodies into different bodies—different bodies with different persistence conditions. Although there is a tradition in Christianity that a person’s resurrection body will be the same body that she had on earth, such an interpretation of the doctrine of resurrection seems metaphysically mistaken. The same body could not have different persistence conditions at different times. So, if the Christian doctrine of resurrection as bodily is correct, resurrected bodies are not the same bodies as our earthly bodies, but the person with a resurrected body is the same person who on earth had an earthly body. So, it seems to follow from Christian doctrine that we are not identical to our organic bodies, and that is the conclusion that EM supports as well.

Conclusion

The Extended-Mind Thesis, on one version, EC, seems compatible with relevant

doctrines of Christianity. Neural implants, brain-controlled robotic limbs and other causally integrated prostheses may be parts of a person's body; but the person continues to exist as long as her first-person perspective is exemplified. Moreover, if we interpret the extended-mind thesis as applying only to subpersonal processing and states, EC shows a way Christians can accommodate at least some of the innovations in biotechnology that may seem to threaten our very existence.

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Further Reading

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