

# You Think With the World, Not Just Your Brain

On the mystery and wonder of extended cognition

*The Atlantic* – [Sam Kriss](#) – October 13, 2017

As always, a horror film managed to express the idea before the scientists ever could, and in better, more visceral terms. “The television screen,” the haunting image of Brian O’Blivion tells us in David Cronenberg’s 1983 classic *Videodrome*, “is the retina of the mind’s eye. Therefore, the television screen is part of the physical structure of the brain.” So far, so much media theory: secondhand McLuhan, thirdhand Baudrillard. It’s what happens next that’s interesting.

Our hero, wilting under the caustic nihilism of the video age, finds that strange things start happening not to his mind, but his *body*. A howling cavern opens up in his stomach, rimmed by grisly pulsing labial folds. It eats weapons. His hand sprouts metallic screws, driving into his wrist, locking his gun into a hand that swells into a grotesque of formless and seeping flesh. He is told to kill, and he kills. It’s not that his mind has been invaded. It just exists beyond itself; it now contains endless shelves of video tapes. This is, somehow, obscurely, us; this monstrous body is our own.

Among philosophers, biologists, and cognitive scientists, this nightmare is an exciting new field of study, known as embodied or extended cognition: broadly, the theory that what we think of as brain processes can take place outside of the brain. In some cases, this isn’t a particularly radical idea. The [octopus](#), for instance, has a bizarre and miraculous mind, sometimes inside its brain, sometimes extending beyond it in sucker-tipped trails. Neurons are spread throughout its body; the creature has more of them in its arms than in its brain itself. It’s possible that each arm might be, to some extent, an independently thinking creature, all of which are collapsed into an octopean superconsciousness in times of danger. Embodied cognition, though, tells us that we’re all more octopus-like than we realize. Our minds are not like the floating conceptual “I” imagined by Descartes. We’re always thinking with, and inseparable from, our bodies.

The body codes how the brain works, more than the brain controls the body. When we walk—whether taking a pleasant afternoon stroll, or storming off in tears, or trying to sneak into a stranger’s house late at night, with intentions that seem to have exploded into our minds from some distant elsewhere—the brain might be choosing where each foot lands, but the way in which it does so is always constrained by the shape of our legs. We can’t ever stalk like a creature with triple-jointed legs, or sulk in the dejected crawl of a millipede, or stride with a giraffe’s airy gangly indifference. The way in which the brain approaches the task of walking is already coded by the physical layout of the body—and as such, wouldn’t it make sense to think of the body as being *part* of our decision-making apparatus? The mind is not simply the brain, as a generation of biological reductionists, clearing out the old wreckage of what had once been the soul, once insisted. It’s not a kind of software being run on the logical-processing unit of the brain. It’s bigger, and richer, and grosser, in every sense. It has joints and sinews. The rarefied rational mind sweats and shits; this body, this mound of eventually rotting flesh, is really you.

That's embodied cognition. Extended cognition is stranger.

Many years ago, when I found myself standing on the roof of a tall building, or on a platform of the London Underground, or by the banks of the river, I would feel a strange urge to *throw myself off*. Not because I was miserable or because I particularly wanted at that moment to die; it was like an itch, an obsessive-compulsive tic, the deep gravitational hunger of the death drive. I would visualize myself falling, stupidly and fatally, for no reason other than to indulge in the most pointless destruction. I would almost savor the feeling of being hemmed in on all sides by ordinary life—commuters on the platform, tourists gawping at the Thames—and at the same time, right on the edge of the void, the domain of gods or nothingness or both. Maybe you've felt the same urge. But I don't get it any more. These days, I still sometimes feel that cold vertiginous breath down my neck, but it's not my body I want to throw down into the void. It's my phone. Isn't the phone, now, part of the physical structure of the brain?

In 1998, 15 years after *Videodrome*, the philosophers and cognitive scientists Andy Clark and David J. Chalmers finally made sense of what was happening in their [landmark paper](#) "The Extended Mind." The mind, they argue, has no reason to stop at the edges of the body, hemmed in by skin, flapping open and closed with mouths and anuses.

Recent studies have added weight to their provocation: It's been [shown](#) that spiders can use their webs to process and store information, essentially "outsourcing" mental processes to physical structures. Why is it, Clark and Chalmers ask, that *mentally* rearranging Scrabble tiles is considered a "part of action" rather than a "part of thought"?

When we jot something down—a shopping list, maybe—on a piece of paper, aren't we in effect remembering it outside our heads? Most of all, isn't language itself something that's always external to the individual mind? We can't invent our own private languages; as [Wittgenstein](#) showed in his *Philosophical Investigations*, we can invent our own words for things, but only as substitutes for words that already exist; it's impossible to make the incommunicable meaningful. Language sits hazy in the world, a symbolic and intersubjective ether, but at the same time it forms the substance of our thought and the structure of our understanding. Isn't language thinking *for* us?

This is not, entirely, a new idea. Plato, in his *Phaedrus*, is hesitant or even afraid of writing, precisely because it's a kind of artificial memory, a hypomnesis. (Incidentally Freud inverts the metaphor 2,000 years later: The unconscious mind is like a [child's toy](#), the Mystic Writing Pad.) Writing, for Plato, is a *pharmakon*, a "remedy" for forgetfulness, but if taken in too strong a dose it becomes a *poison*: A person no longer remembers things for themselves; it's the text that remembers, with an unholy autonomy. The same criticisms are now commonly made of [smartphones](#). Not much changes.

Most of all, though, a theory similar to extended cognition is present in the work of Hegel and his descendants—and, in particular, Marx. In the dialectical tradition, the hermetic and self-contained Cartesian consciousness is impossible: We only become conscious in and through the world and its history. Marx, in the *Economic and Philosophic Manuscripts of 1844*, describes the process of unalienated labor in familiar terms. "The object of labor is, therefore, the objectification of man's species life: for he ... contemplates himself in a world that he has created." Work, without ownership or scarcity, is a kind of play: You're always turning the exterior world into something else, something

more responsive to your needs and your being. In a liberated future, the world of objects can be an externalization of our own consciousness; it can be a true home for humanity, because it is already ourselves. But not yet; first we have to overthrow capitalism. In the 20th century, Theodor Adorno picks up this theme: The “separation between subject and object” *exists*—I am not the world around me, in fact for the most part I’m terrified by it while it’s monstrously indifferent to me—but this is “the result of a coercive historical process.” It wasn’t always this way, it doesn’t have to be forever. The difference is that, according to theories of extended cognition, this separation is already over and always was, that subject and object are united right now.

But not entirely. Extended cognition promises to rip up the idea of a mind that lives only in the furrows of the brain, but it doesn’t always follow through. Cognition is *extended*, outsourced, leaking from cranial slime into the material world—but like an octopus’s tentacle, it can always dart back in. There are stranger and more dangerous possibilities. Take the grocery list. For Clark and Chalmers, it’s a brain process—information storage and retrieval—offloaded onto a piece of paper. But by *whom*? In *Limited Inc*, Jacques Derrida uses the same object to construct a very different interpretation. “At the very moment ‘I’ make a shopping list,” he writes, “I know that it will only be a list if it implies my absence, if it already detaches itself from me in order to function beyond my ‘present’ act and if it is utilizable at another time, in the absence of my being-present-now.” The list will still do its cognitive work if you are not currently reading it. The list will still do its work if you are dead. If we can accept that a grocery list is in some way thinking, is the part of the mental apparatus that remains lodged in the human brain really so central? The thought-capacity of objects is indifferent to whichever bit of brain is plugged into it. A war memorial remembers its list of the dead for us, in the same way that a scrap of paper remembers milk, and it keeps remembering, long after the weeds have grown and the rest of the world has tumbled past caring.

In *Molloy*, Samuel Beckett’s strange and gorgeous thicket of a novel, a long section sees the titular character sheltering by a beach, trying to work out a system for passing sucking-stones between his various pockets and his mouth, so that he never sucks on the same stone twice. Fantastic methods are devised, new ways of ordering the world: stones moving around by fours across the ordered and Ptolemaic universe of his coat; stones moving singly in postmodern disorder. Is it Molloy who is thinking here, or the system, the dynamic complex of pockets and stones? This passage has attracted a fair amount of attention from philosophers, who tend to see it as either a parody of logical systems in general or a form of thought beyond reason. Deleuze and Guattari, in *Anti-Oedipus*, see in it the model of a new kind of reasoning: schizoid, unbodied, and diffuse. Molloy’s circulation of pebbles is a “complete machine,” one in which “the mouth, too, plays a role as a stone-sucking machine.”

We’re used to thinking of active machines as *digital* machines; when we talk about the possibility that unliving things might think, we mean computers. We might be very shortsighted. All the processes we attribute to brains and computers alone might fill the world. In the same way that the legs code the program of walking, unknown information is inscribed in the patterns of grains of sand as the wind tosses them on an empty beach; the frenetic interconnections of the internet and the spoken world are thrumming in a field of grass. The thinking machine thinks; it has its processes and its functions. And the world of inert objects might think too, in slow and strange ways which we can only borrow for a moment, and which disappear again into what sounds like silence.

### Discussion Questions:

1. What evidence does Kriss (the author) give for *embodied cognition*? Is this evidence convincing? What parts of your body do you think you use for thinking?
2. What do you think Kriss means by the phrase: “intentions that seem to have exploded into our minds from some distant elsewhere”?
3. What evidence does Kriss give for *extended cognition*? Is this evidence convincing? What external aids, if any, do you use to think?
4. What are some of the implications of the idea Kriss presents that a shopping list or a war memorial does its thinking separately from the people who made it?
5. What are some of the implications of the ideas of extended and embodied cognition for the field of artificial intelligence?