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The 7E Model of the Human Mind: Articulating a Plastic Self for the Cognitive Science of Religion

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Abstract

This article proposes a 7E model of the human mind, which was developed within the cognitive paradigm in religious studies and its primary expression, the Cognitive Science of Religion (CSR). This study draws on the philosophically most sophisticated currents in the cognitive sciences, which have come to define the human mind through a 4E model as embodied, embedded, enactive, and extended. Introducing Catherine Malabou's concept of "plasticity," the study not only confirms the insight of the 4E model of the self as a decentered system, but it also recommends two further traits of the self that have been overlooked in the cognitive sciences, namely the negativity of plasticity and the tension between giving and receiving form. Finally, the article matures these philosophical insights to develop a concrete model of the religious mind, equipping it with three further Es, namely emotional, evolved, and exoconscious.

Keywords

Cognitive Science of Religion – 4E model of the mind – Catherine Malabou – consilience – evolution – dual-process theories

1 How Many Es Does the Religious Mind Have?

The Cognitive Science of Religion (CSR), which relies on cognitive science and evolutionary psychology to investigate religion, has emerged over the past

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three decades. CSR scholars engage in an open dialogue with the cognitive sciences as a thematically broad, scientifically self-aware, and philosophically increasingly sophisticated discipline (Rowlands, 2013). The "new sciences of the mind," as Mark Rowlands has argued, offer sheer endless possibilities to productively explore the most long-standing conflicts between the humanities and the natural sciences and offer CSR more than just a few staple theories. More specifically, Rowlands highlights the importance of the 4E model of the human mind, which envisions it as embodied (made up partly of extraneural bodily structures and processes), embedded (designed to function in tandem with the environment), enacted (constituted in part by action), and extended (located in the environment).

The general orientation of this essay is that of a dialogue between the cognitive sciences and religious studies as two equally valid disciplines. In other words, the article's goal is to contribute to the development of consilience, which is premised on the idea that scholars of religion should take an activist stance in regards to the cognitive sciences. Regardless of whether one follows the latest "turn" or not, if the humanities want to not only shape the future of their disciplines but also actively partake in the overall intellectual orientation of our world, they can no longer ignore, or rely on fragmentary uses of cognitive science in their studies, but need a sustained, systematic, and profound engagement with this discipline's theories, experiments, and underlying philosophy. As Edward Slingerland, one of the leaders of this type of active engagement, writes:

> When it comes to the scientific study of human-level phenomena, scholars with humanities expertise need to be on the ground floor of basic theorizing and experimental design, and not viewed as merely passive providers of cultural and historical data.
>
> SLINGERLAND, 2008, p. 33

In a recent article, Robert McCauley, one of the founding fathers of the subdiscipline, argued that CSR scholars should draw on cognitive science theories while simultaneously contributing their own expertise in the study of religion in order to create a more comprehensive model of the human mind. More specifically, McCauley picks up the 4E model of the human mind, arguing that it should be applied to religion while being simultaneously expanded (McCauley, 2017b). McCauley argued convincingly that the 4E model is "2 Es too few." The religious mind, so he states, is not only embodied, embedded,

enactive, and extended, but also and evolved and emotional (McCauley, 2017b, p. 204). In this article, I not only review these earlier developments in cognitive science and the cognitive science of religion, but I also contend that CSR scholars should premise their inquiry on a 7E model of mind, which also includes the exoconscious mind.

2 Catherine Malabou's "Plasticity" and the Philosophical Critique of the Cognitive Turn

Before developing this 7E model of the human mind in more detail, however, I would like to explore briefly some of the weakness in the cognitive turn. I do so by relying on the work of one of the most critical thinkers participating in the larger consilience endeavor, namely Catherine Malabou. Unquestionably one of the most important philosophers of this generation, in *What Should We Do with Our Brains?* (2008), Malabou moves decisively beyond the fold of Continental philosophy to engage in the most recent findings from neuroscience. More specifically, she takes the discovery of cerebral plasticity as the starting point to develop critical thinking about the philosophical possibilities and risks entailed in the new brain sciences (Malabou, 2008). "The concept of plasticity," Malabou explains, "has an aesthetic dimension (sculpture, malleability), just as much as an ethical one (solicitude, treatment, help, repair, rescue) and a political one (responsibility in the double movement of the receiving and the giving of form)" (Malabou, 2008, p. 30).

Malabou, while drawing on the cognitive sciences, makes three critical points about plasticity that show the limitations of the larger cognitive turn. The first point of Malabou's reflection on plasticity is that the self is created in a space between centrality and periphery. Dedicating an entire chapter to the brain as "central power," Malabou argues for the understanding of the self as a nexus of connections that have no anchoring in any centrality. Drawing on Deleuze's notion of the brain as an "acentered system," she writes:

> The functional plasticity of the brain deconstructs its function as the central organ and generates the image of a fluid process, somehow present everywhere and nowhere, which places the outside and the inside in contact by developing an internal principle of cooperation, assistance, and repair, and an external principle of adaptation and evolution.
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> MALABOU, 2008, p. 35

The second key idea of Malabou's book is that plasticity should not only include the positive aspect of this concept – in the form of the human being's continued capacity for growth – but also its negative connotations:

> We should not forget that *plastique*, from which we get the words *plastiquage* and *plastiquer*, is an explosive substance made of nitroglycerine and nitrocellulose, capable of causing violent explosions. [...] The word plasticity thus unfolds its meaning between sculptural molding and deflagration, which is to say explosion. From this perspective, to talk about the plasticity of the brain means to see in it not only the creator and receiver of form but also an agency of disobedience to every constituted form, a refusal to submit to the model.
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> MALABOU, 2008, pp. 5–6

Finally, Malabou's third key idea of relevance to the advance of the cognitive revolution in the study of religion is the necessity to take the tension between continuity and rupture – without a doubt, the most important tension underlying plasticity – seriously. Speaking about humanity's remarkable "capacity for self re-form," she writes:

> Is this not the best possible definition of plasticity: the relation that an individual entertains with what, on the one hand, attaches him originally to himself, to his proper form, and with what, on the other hand, allows him to launch himself into the void of all identity, to abandon all rigid and fixed determination?
>
> MALABOU, 2008, p. 80

Elsewhere, I have developed a concrete discussion of how Malabou's critique could be applied to existing approaches in CSR. Specifically, I argue that cognitive approaches to religion and meditation have fallen prey to anthropocentrism, positivity, and a conservative conception of the unconscious (author). The current essay represents somewhat of a counterpoint as it aims to make a constructive contribution to the discipline by developing Malabou's philosophical program of plasticity into a method for the Cognitive Science of Religion that can serve as a model for other inquiries into the religious traditions of this world.

In short, I develop a 7E model of the human mind that translates the three key attributes in "plasticity" identified by Malabou – the decentered brain, the negativity of plasticity, and the tension between giving and receiving

form – into the language of cognitive scientists in order to address the specific shortcomings of CSR.

3 The 7E Model of the Human Mind

3.1 *The Plastic Self as a Functional System*

Although the proponents of the theories of the enactive, the embedded, the embodied, and the extended mind are not always in agreement between each other, together they present a version of the poeietically plastic aspects of the human mind that opens new trajectories for the integration of the humanities and the natural sciences (Menary, 2010a). By presenting us with a self that moves in between subjective experience and objective reality (enactive mind), physical body and spiritual mind (embodied mind), the individual and his environment (embedded mind), and the human mind and his technical creations (extended mind), the 4E model of cognition demonstrates that the self is much bigger than the human being. As it forces us to think about the self as a dynamic functional system, I show that the 4E model of cognition is an effective means to fully take advantage of the interdisciplinary potential of cognitive science while simultaneously counteracting the excessive anthropocentrism of cognitive approaches to the human (Barrett, 2018).

3.1.1 The Embodied Mind

As part of the 4E model of the mind, cognitive scientists argue that the self is only thinkable along the lines of embodiment. Undoubtedly, my use of the term "embodiment" raises a certain resistance amongst the humanistic readers. One needs to ask the question: how can religions, which frequently specialize in the cultivation of extraordinary states of mind – meditation, introspection, daydreaming, visions, memories, dreams – that claim to be moments when the internal life of the mind is gaining a certain independence of its material substratum, be based in a materialism embraced by the natural sciences? My conciliatory response addresses both the experts of religions and the cognitive sciences, arguing that neither of them subscribes to pure materialism or pure dualism.

As for the first, the humanities struggle to integrate cognitive sciences into their studies because of what we could call an ontological critique. In brief, the humanities fear that the turn to cognitive science is commensurate with a turn away from culture to nature, from spirit to matter, from texts to genes, from consciousness to brain (Pals, 2006, pp. 302–304; Shweder, 2012; Thompson & Camlin, 2015, pp. xxiii–xxiv; Walach & Römer, 2011). This being said, cognitive

science has too often been reduced to a purely materialistic or physicalist endeavor, which seeks to limit spirit to matter, cultural flexibility to the genomic unconscious, and mental phenomena to brain activity (Atran, 1998; Hirschfeld & Gelman, 1994; Sperber & Hirschfeld, 2004; Whitehouse, 2004). Being part and parcel of the modern paradigm, which contemporary sociologists and anthropologists have found to be nowhere near as naturalistic and materialistic as it presents itself, the mind sciences are ultimately subscribing to a hybrid model of ontology that is neither purely materialistic, nor purely idealistic (Castro & Skafish, 2014; Descola & Lloyd, 2013; Latour, 1993; Serres, 2013; Souriau, Stengers, Latour, & Souriau, 2015).

Although contemporary cognitive scientists regard the mind as based on the physical body, this type of embodiment is traced to the pragmatic philosophy of thinkers like John Dewey and William James, and therefore much more nuanced than the nineteenth-century phrenologists, who were known to establish direct correspondences between cognitive functions and specific brain regions, or the sociobiology of the first-generation cognitive scientists (Chemero, 2009; Gallagher, 2005; Gallagher & Zahavi, 2008, pp. 33–34; Johnson, 2007, pp. 112, 263–264). Contemporary neuroscientists, by contrast, argue that the brain does not function in such compartmentalized ways. Instead, they speak of the modularity of the mind, explore the activation of multiple neuronal networks spread out throughout the nervous system, and highlight the sheer endless functions of neurons to relativize the threat of radical materialism. Evolutionary biology, similarly, embraces epigenetics to shift from genetic determinism. The epigenetic model offers a complex and interactional conception of human evolution based on a co-development of internal genes and external socio-cultural symbolisms (Jablonka, Lamb, & Zeligowski, 2006; Penn, Holyoak, & Povinelli, 2008; Richerson & Boyd, 2005). In other words, embodiment first and foremost signifies that the self is a system that extends beyond the brain.

In cognitive science, these ideas were accompanied by a general turn towards neuroplasticity, the idea that experience transforms the brain. In other words, the embodied self not seen as a given but a continued transformative process of self-creation. It is here that research into contemplation has burgeoned into a fertile realm of encounter as contemplative practitioners and their meditation practice have not only linked to the expression of certain genes rather than others (Dreyfus, 2011, pp. 114–115; Lutz, Dunne, & Davidson, 2007, p. 521; Ricard & Singer, 2017), but have also been shown to lead to alterations in the neuroendocrine functioning (Brand, Holsboer-Trachsler, Naranjo, & Schmidt, 2012; O'Leary, O'Neill, & Dockray, 2016; Turakitwanakan, Mekseepralard, & Busarakumtragul, 2013), temperature

regulation (Kozhevnikov, Elliott, Shephard, & Gramann, 2013), as well as consistent modifications to several areas of the brain – such as the anterior cingulate cortex, insula, and amygdalae (Tang, Hölzel, & Posner, 2015).

3.1.2 The Embedded Mind

The second principle of the self as it is understood in this paper, is that it has to be conceived as embedded. This E furthers our understanding of the self as a systematic process adumbrated in the embodied mind. In this context, it might be useful to remember the words of the visual anthropologist Gregory Bateson. In his *Steps to an Ecology of Mind*, an attempt not unlike mine in the sense that he too attempted to develop a type of "meta-science" of epistemology to unify various scientific fields, he describes the self as a process that is both embodied and embedded in a larger system that includes the environment:

> We may say that "mind" is immanent in those circuits of the brain which are complete within the brain. Or that mind is immanent in circuits which are complete within the system, brain plus body. Or, finally, that mind is immanent in the larger system-man plus environment.
>
> BATESON, 1973, p. 317

If the meaning-giving relationships between the envelope of our physical bodies and the larger universe surrounding us can be imagined as a system, then we need to identify the many forms in which the self is connected to its environment.

For example, if we study the self in a religious context – be it as an individual human being or as the identity of a religious tradition – we need to take into consideration at least three dimensions. First, the historical-material dimension, that is to say the cultural context that defines its emergence, development, and nature; second, the religious-philosophical dimension that is represented by such things as meditative practices, scriptures, worldviews, myths, conceptions of the body, and so forth; and third, psychic-internal dimension, which includes different cognitive functions of the human mind that present themselves in perception, memory, attention, language, and so forth.

3.1.3 The Enactive Mind

On an epistemological level, the rise to prominence of cognitive science in the humanities has been associated with a turn away from context to technique, from meaning to efficacy, from understanding to explanation, and from humanistic inquiry to science. According to such a conception, the fact that we can't hook up the brains of all religious practitioners to a

neuroimaging device, coupled with their frequent emphasis on subjective experience could be seen as conflicting with cognitive science's preference for a third-person approach, where the scientist is an external observer rather than an experiencing subject.

However, as recent scholarship from within cognitive science shows, this epistemological bias is being questioned within the discipline itself. Both theoretical thinkers – who point to phenomenologists like Husserl, Brentano, or Merleau-Ponty (Gallagher & Zahavi, 2008; Johnson, 2007; Lakoff & Johnson, 1999; Thompson, 2007; Varela, Thompson, & Rosch, 1991) – and experimental researchers – who study cognitive functions by relying on first-person accounts (Gallagher, 2003; Hasenkamp, 2014; Lifshitz, Cusumano, & Raz, 2014; Lutz & Thompson, 2002) – have helped cognitive scientists move beyond the behaviorist biases of their own tradition towards an epistemology that embraces subjectivity (Skinner, 1974; Watson, 1925).

Cognitive scientists speak of the generation of our sense of self as something that happens not only through experience, but also by means of the engagement with the environment. In other words, the enactive mind functions on the practiced interface between the living organism and his environment (Gallagher, 2005; Noë, 2004; Thompson, 2007). In theories developed in collaboration with research on Artificial Intelligence, cognitive scientists don't see humans as passive voyeurs, looking at the world, but rather as active participants in the world, pragmatically enacting their own autonomous and adaptive identity in constant sensorimotor interaction with their environment (Gallagher & Zahavi, 2008; Johnson, 2007; Noë, 2012). It is in the context of this constant process of active, moving, and pragmatic self-regulation that the enactivist approach speaks of "meaning making" as the organism is forced to make his environment meaningful and significant from the perspective of its own existence.

As a consequence of this practical dimension, I not only suggest that we take embeddedness and translate it into a careful study of the relationships between the three aspects constituting the self – the historical-material, the religious-philosophical, and the psychic-internal – but I also argue that they are to be studied in function of each other. The functionalism that I am speaking of here, of course, is not an organicist-biological reading according to which every aspect is vital to its survival, but rather a mathematical-algebraic conception of function as it can be found in the anthropology of Lévi-Strauss or the linguistic school of Prague (Lenhard, 2015; Maryanski & Turner, 1991; Sova, 2005). According to this type of functionalism, the self is dynamic and changing as each element is adjusting to the changes in the other parts of the system. In other words, if the historical circumstances change, the

contemplative and psychological dimensions of the religious "self" – again both as individual and as collective tradition – adapt and adjust in order for the system to maintain its integrity.

3.1.4 The Extended Mind

The fourth E that allows us to define the self as a functional system is connected to the first elements, yet adds a decidedly diachronic perspective that will only become more substantial in the following pages. The meaning-making efforts that take place in between the self and the encountered environment and the interaction between system's historical-material, the religious-philosophical, and the psychic-internal elements are not static but rather the result of processes that change over time, impacting each other and requiring constant adjustments within the system itself. Of course, this vertical dimension of the creation of the self should not be described as a linear arrow, but rather like a field in which the marking boundaries between nature and culture, the individual and his environment, and the system's historical, religious, and psychological elements are constantly renegotiated.

The fourth E is the extended mind according to which some objects in the external environment, results of thousands of years of technological evolution, are utilized by humans in such a way that they become extensions of the mind itself (Clark, 2011; Clark & Chalmers, 1998; Menary, 2010b). Highlighting the tremendous impact of technical and physical objects on our mental processes of creating meaning in our environment, this type of reasoning argues that even cell phones, books, and tools form part of our mind inasmuch as they are the locus of our thinking and deposits for our memory.

As the *anthropos* meets the cosmos, the natural environment is changed while at the same time changing the human being. Over time, as both parts of the system re-engage, they dynamically adjust to one another. The self can be seen as a result of distributed cognition, a zone of interpenetration or even "infestation" located in between the individual organism and its environment, the two mutually shaping each other throughout their development (Hutchins, 1995; Ingold, 2013; Kohn, 2013; Leroi-Gourhan, 1945; Malafouris, 2013).

The extended mind, however, points not only the ever-evolving nature of the human-nature interaction but also to the question of agency. The fourth E tears down the presumed heterogeneity and ontological difference between the producer and what is produced. The product, although "created" by the producer, becomes itself an agent of transformation as it participates in the generation of secondary thoughts.

3.2 *The Plastic Self as Locus of Crisis*

For being relevant for CSR, the 4E model of the human mind needs to be complemented by two further Es that add a dimension of crisis to the self that is not available in the plastic self as the dynamic functional system that we have studied so far. In fact, the ultimate goal of the process of "meaning making" of the four Es is the creation of a boundary between the self and the surrounding world that allows for a homeostatic identity (Flanagan, 2007; Thompson, 2007; Varela, 1979). What is missing in this account of the self that attempts to individuate as a coherent, integrated, and autonomous being by structuring its relationship within a certain ecological milieu, is the disruption of homeostasis. The emotional and the evolutionary minds are attempts to account for the crisis that occurred both historically – in moments of trauma and destruction that humanity suffered throughout its long evolution – and in the present moment – in the many instances when our minds are marked by emotional responses and alterations of consciousness.

3.2.1 The Emotional Mind

As we saw, it was Robert McCauley, who argued that the 4E model of human cognition should be expanded to include "emotion" (McCauley, 2017b, p. 204). The study of affects in CSR, however, is not new. For example, Boyer and Ramble, two early CSR scholars called attention to minimally counterintuitive or MCI concepts in order to emphasize that religion draws much of its own identity from contradictions in the form of ideas and concepts that violate our innate, hard-wired ontological expectations (Boyer & Ramble, 2001). More recently, researchers like Porubanova and Shaver have emphasized that the contradictory nature of these concepts is also closely tied to high levels of sensory and emotional stimulation and that it might be the initial – and frequently negative – emotional response rather than their contradictory nature itself that makes religious experiences relevant (Porubanova & Shaver, 2017). Thus, while chaos, surprise, and ambiguity play an important role in the development of consciousness, collectively they point to its emotional nature, which has been central to the discussion of the human mind amongst cognitive scientists focused on affective psychology (Thagard & Kroon, 2008, p. 159).

The emotional mind is intimately linked to the 6th E, namely the evolved mind. Fear, for example, played a crucial role in the evolution of the human species as a whole as it motivated survival and gave the impetus for the performance of defensive behaviors that were preserved in human minds and bodies

until today (Cantor, 2009). CSR scholars have rightly criticized the 4E theory of the mind for neglecting the evolutionary dimension of the human mind (McCauley, 2017b, p. 204; Xygalatas, 2018, pp. 261–262). CSR has drawn heavily on evolutionary theory since its inception making it at times its unifying framework for the study of religion as it is one of the most effective means to integrate the humanities and the natural sciences (Geertz & Petersen, 2019; McCauley, 2017a; Turner et al., 2017).

3.2.2 The Evolved Mind

The evolved mind can be seen as a mind of crisis, if this word is understood in its original Greek connotation of *krisis* as "separation," and "division." Generally speaking, scholarship has argued that the human being is genetically divided. Patrick McNamara, drawing on the work of David Haig, an expert of genetic conflict, argues that "our genetic inheritance militates against a unified consciousness" (Haig, 2002, 2006; McNamara, 2009, p. 38). From an evolutionary perspective, indeed, human beings are a "conglomeration of conflicting sets of genes, all of which compete with one another to pass copies of themselves down the generations" (McNamara, 2009, p. 37). These "multiple genetic sources," furthermore construct "multiple brain networks that reflect competing interests" (McNamara, 2009, p. 37). The field of goal systems theory (Kruglanski et al., 2002), in particular, is interested in investigating how the self is subject to frequently conflicting motives, such as selfishness and altruism, competition and collaboration, short-term pleasures and long-term health, and so forth (Elster, 1990; Mansbridge, 1990; Sen, 1977).

Furthermore, evolution also shaped the physical nature of our brains, which is marked by the capability to split – both architectonically and functionally. For one, the brain developed hierarchically in an upward direction, with the brain-stem and the cerebral cortex being the two most distant parts of our brains. The brain regions that are phylogenetically ancient – the brainstem, the cerebellum, and the cerebrum – and are variously designated as subcortical, ventral, reptilian, limbic, and so forth, basically responsible for most of our unconscious processes of life-regulation (Damasio, 2010a, pp. 249–251; Goldberg, 2009, pp. 28–29).

Developing over hundreds of thousands of years, the brain gradually grew to develop a cerebral cortex, or neocortex. Unlike the evolutionarily early parts of the brain, this frontoparietal area is marked by highly versatile, conscious, intentional, but slow, energetically costly, and demanding processes. The cortex, unlike the brain-stem, is much more complex in nature, being responsible for higher forms of mental functioning, such as image-making, memory capacity, imagination, reasoning, and language. This neuroanatomical separation

between the two parts of our brains, caused what Damasio called a "major anatomo-functional bottleneck."

> Notwithstanding the anatomical and functional expansion of the cerebral cortex, the functions of the brain stem were not duplicated in the cortical structures. The consequence of this economic division of roles is a fatal and complete interdependence of brain stem and cortex. They are forced to cooperate with each other. [...] Given that the brain stem was still being asked to guarantee the full scope of life regulation and the foundations of consciousness for the entire nervous system, a way had to be found of ensuring that the brain stem influenced the cerebral cortex and, just as important, that the activities of the cerebral cortex influenced the brain stem.
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> DAMASIO, 2010a, p. 264

Other remarkable evidence for the evolved mind as a mind of *krisis* comes from the fact that the brain developed two different halves. Although these two sides are connected through bands of neural fiber tract known as the *corpus callosum*, the two hemispheres function independently. Even more importantly, their mode of processing information is radically asymmetrical. While the right side of our brain has a holistic manner of processing information – being primarily responsible for nonverbal signals, musical skills and singing, our sense of the body, mental models of selfhood, and intense emotions – the left hemisphere is responsible for logical and sequential thinking – being primarily associated with language-based processing of information, regulating both detailed information of words and the semantic structure of communication, and right-versus-wrong thinking.

The separation between these two brains is so drastic that so-called split-brain patients who underwent commissurotomy – the severing of the corpus callosum connecting the two hemispheres of their brains – developed selves that manifested interhemispheric competition. In one instance, reported by Sally Springer and Georg Deutsch, a patient "found his left hand struggling against his right hand when he tried to put his pants on in the morning: One hand was pulling them up while the other hand was pulling them down" (Springer & Deutsch, 2003, p. 40). As Roger Sperry put it over four decades ago, "each disconnected hemisphere appears to have a separate 'mind of its own'" (Sperry, 1974, p. 7).

The evolution of our brain and its continued division is not only architectonically apparent but also functionally. From the perspective of evolutionary psychology, a big part of our thinking is automatic, unconscious, and rapid

as humans were required to appraise the situation to estimate danger and respond to attacks. In interactions with the environment, the human mind evolved to make snap decisions about whether to stay go, fight back, or to give in (Bargh, 2017).

Further, the brain evolved in such a way as to give humans the ability to dissociate from negative experiences. The so-called thinking in the fight-flight-freeze response to threat and danger is not only frequently associated with the mind's dissociative abilities but is also overwhelmingly located in the phylogenetically ancient regions of the human brain. Based on such insights, scholars of various orientations within psychology and cognitive science have argued that trauma and the evolution of consciousness are closely connected and that trauma was ultimately a driving force in the evolution of humanity and a major motor of the development of our brains as they are today (Baldwin, 2013; Bernstein, 2005; Christopher, 2004).

3.3 *The Plastic Self as Resilient*

The 7E model of the human mind does not stop at the emotional and the evolved minds as they neglect the fact that although some of the human mind's most important plastic aspects are shaped by trauma, it is not passively receiving this negative experience. Rather, as I will show by pointing to the seventh E, the exoconscious mind, humans have the ability to transcend crisis by asserting their resilience. A key way to do this is through the exoconscious mind, which has been described as an effective means to "bypass the consciousness bottleneck" (Bargh & Huang, 2009, p. 128). Of course, the exoconscious mind has received attention amongst cognitive scientists. However, while cognitive scientists are correct in highlighting the important conservative and life-regulating functions of unconscious processes, this final section of this article also shows how the exoconscious mind allows us to see the human mind as dialectical to the point that even unconscious processing can be seen as intelligent, creative, and progressive.

3.3.1 The Exoconscious Mind

The exoconscious mind is, in many ways, connected to the earlier Es. The development of the unconscious, for example, has been directly linked to the evolution of humanity, as it was required to develop automated responses to threat and danger that operated quickly, automatically, and without too much mental resources (Bargh, 2017, p. 165). Furthermore, the appreciation for the lower-order processes of human cognition can also be found in the embodied, the embedded, the enactive, and the emotive minds as meaning making (Colombetti, 2014, pp. xiv–xv), perception (Dehaene, 2014, pp. 25–26), and

affects (Johnson, 2007, pp. 14, 66) have been shown to operate largely on a immanent, pre-conceptual, and non-propositional level.

While cognitive scientists are keen to demonstrate that much more than life-maintaining bodily functions – such as heart rate, blood pressure, digestion, and genital sexual response – take place well below the threshold of awareness, they are still reluctant to grasp creative potential of exoconscious processes. Similarly, CSR researchers are primarily interested in unconscious processes because they allow them to reinforce their conception of the delusional nature of non-conscious processing pervasive in religious phenomena.

What I argue for in this paper, however, is not a mystical endorsement of implicit processing, but rather a more differentiated understanding of the exoconscious mind as an ambivalent energy. If the evolved mind was described as a mind of *krisis*, the exoconscious mind can be described as a type of *pharmakon* (Derrida, 1981; Rinella, 2012; Stiegler, 2012). On the one hand, it is akin to poison inasmuch as it is a symptom of disease and suffering; on the other hand, it is a sign of healing and human resilience.

One of the rare CSR scholars to have recognized not only the inherent ambivalence of the exoconscious mind but also its central importance for our understanding of religion was Ann Taves. In *Fits, Trances, & Visions*, she writes:

> Over time, I became aware that specifying the kind of experiences I wanted todiscuss posed challenges precisely because of their contested character. Various academic disciplines have developed distinctive discourses to designate the general sort of experience in question. Psychiatrists most commonly refer to dissociation (or more distantly hysteria); anthropologists to trance, spirit possession, and altered states of consciousness; and religionists to visions, inspiration, mysticism,and ecstasy. These discourses are not simply descriptive, but rather reflect the various historical and explanatory commitments of the disciplines themselves.
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> TAVES, 1999, p. 7

I suggest that the relevance of this ambivalent nature of the exoconscious mind is best approached through another fertile field of inquiry, the so-called dual-process theories of cognition. Generally speaking, cognitive scientists rely on dual-process theory to account for the difference in processing information (Evans, 2003; Evans & Frankish, 2009; Evans & Over, 1996; Stanovich, 1999, 2009). Although somewhat crude and simplistic, the distinction between "system 1" processes – which correspond to my definition of the exoconscious as they are implicit, automatic, non-conscious, intuitive, fast, and frugal in terms of energy consumption – and "system 2" processes – which are

explicit, controlled, conscious, reflective, slow, and energy consuming – has been very popular amongst CSR scholars (Baumard & Boyer, 2013; Morgan, 2016; Oviedo, 2015).

Unlike the bulk of CSR scholars, dual-process theorists are well aware of the ambivalent nature of the exoconscious mind. Experimentally studying these forms of mentation in a whole range of cognitive phenomena, such as moral judgment, decision making, probabilistic reasoning, behavioral economics, social cognition, and self-esteem, scholarship has demonstrated the tremendous range of effective, well-adapted, and precise operations that take place outside of awareness. (Chaiken & Trope, 1999; Haidt, 2001; Kahneman, 2013; Reber, 1993; Sloman, 1996; Stanovich, 2011; Stanovich & West, 2000).

In their rediscovery of the positive potential of implicit information processing, researchers speak of a cognitive unconscious, an adaptive unconscious, or a new unconscious (Augusto, 2011; Hassin, Uleman, & Bargh, 2005; Kihlstrom, 1987; T. D. Wilson, 2002). In examining decision taking, for example, Dijksterhuis and his colleagues have shown that individuals make at least equally good or even better choices after a period of unconscious thought rather than exclusively thinking about them consciously (Dijksterhuis, Bos, Nordgren, & Baaren, 2006). By distracting the individuals that they examined, the experimenters prevented them from thinking consciously about the alternatives in question. The unconscious processing of information, which resulted from this experimental strategy, proved remarkably effective, leading to better decision taking than relying exclusively on conscious thought. David Creswell and his team of researchers have later confirmed this finding, showing that unconscious problem-solving relies on the same brain-regions as its conscious counterpart, but that it is also more effective (Creswell, Dutcher, Klein, Harris, & Levine, 2013).

4 Conclusion

In this article, I developed a 7E model of the human mind that is intended to serve as a basic Malabou's philosophical program of plasticity into a method for the Cognitive Science of Religion that can serve as a model for other inquiries into the religious traditions of this world. The 7E model of the human mind translates the three key attributes in "plasticity" identified by Malabou – the decentered brain, the negativity of plasticity, and the tension between giving and receiving form – into the language of cognitive scientists in order to address the specific shortcomings of CSR and CS identified in the first part of the article.

First, in response to the continued presence of anthropocentrism that lingers in the discipline of religious studies, I showed how the relationships between history, religion, and the brain are not hierarchical but rather dynamically changing in light of transformations in the system as a whole. The first meaning of plasticity, then, is that the self is not just the *anthropos* but rather a multidimensional system that consists of functional relationships between humanity and the surrounding world: The socio-politics of the historical context mold religion and cognition; the brain impacts the experience of the historical context and stimulates transformations in religion; religious myths and practices rely on cognitive functions and shape the historical situation.

Second, in order to remedy the excessive identification of the self with consciousness, I demonstrated that the cognitive sciences offer scholars of religion various tools to look at the unconscious, disruptive, and negative sides of human identity. The second aspect of plasticity, in other words, is the idea that the self is not a stable entity premised on a constant stream of consciousness but rather a process that knows variations of intensity with gaps, absence, and trauma being important dimensions that play a key role in human experience. Integrating the first two dimensions of plasticity, we could say that it is the inherent multiplicity of the system of the self that accounts for its vulnerability. In fact, the disruption in our sense of consciousness – for example in psychological or physical trauma – is frequently due to the intrusion of another form of agency that hijacks the system.

Third, in opposition to the conception of the unconscious as a purely conservative aspect of our personality, I argued that the sides of our selves that remain usually in the dark can be innovative, creative, and illuminating. Thus, the third dimension of plasticity claims that even implicit and automatic processes can be intelligent and progressive. Taken together with the first two meanings, we could say that this third aspect of plasticity shows that all parts of the system, even the ones that suffered from trauma, contain the potential for growth and positive transformation.

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