

# **The Scientific Study of Consciousness: Searle's Radical Request**

## **Abstract**

*John Searle offers what he thinks to be a reasonable scientific approach to the understanding of consciousness. I argue that Searle is demanding nothing less than a Kuhnian-type revolution with respect to how scientists should study consciousness given his rejection of the subject-object distinction and affirmation of mental causation. As part of my analysis, I reveal that Searle embraces a version of emergentism that is in tension, not only with his own account, but also with some of the theoretical tenets of science. I conclude that Searle has offered little to motivate scientists to adopt his proposal.*

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Few questions concerning the human condition have been asked by serious thinkers and answered in diametrically opposed ways as the question “What is the nature of mind?” I take it that there are at least three distinct but related questions potentially being asked when this question is posed. The first is: “How does this entity, putatively labeled “mind,” come into existence?” The second question is: “What kind of substance (or thing) is this entity called mind?” The third question is: “Is there any kind of scientific explanation of this entity called mind?” What makes these three questions interesting is how they are related. It seems that a necessary condition for understanding how the mind/consciousness/subjective experience (hereafter MCS)<sup>2</sup> comes into existence is that we first have an understanding of what kind of phenomenon MCS is. Restated, in order for one to know that X has come into existence, it is necessary that one know what X is in order to recognize it when it comes to exist. Moreover, it seems that a scientific explanation of the coming-to-be of MCS requires that some understanding of this phenomenon be known (to scientists) in order to determine how to go about studying it in

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detail. Unfortunately, answers to the second question have proven to be notoriously complicated, rendering questions one and three very difficult to answer.

Given that our current scientific world-view proscribes taking seriously the antiquated Cartesian ontology, which solemnly accepts the existence and bifurcation of mental and material substances (known as substance dualism), what kind of scientific theory of the nature of MCS can be proffered? Surely, given the technological advances in the areas of cognitive/neuroscience (Newman, 1997) and artificial life/intelligence (Boden, 1990,1996; Wang, 2003), one might be inclined to think that our current scientific practices, at the very least, are headed in the right direction in terms of understanding the nature of MCS. In the interest of making this massive subject tractable, I will focus my efforts on the work of John Searle, who offers what he takes to be a new scientific approach to understanding consciousness.

Searle has attempted to provide answers to some of the questions noted above about MCS that attack certain central assumptions shared by many members of the scientific community. His conclusion is that our current scientific practices and assumptions cannot hope to understand the nature of MCS, but that he has an approach that may prove rather efficacious. This approach, thinks Searle, is crucial if contemporary science hopes to make progress in understanding MCS.<sup>3</sup> In this essay, I will explain and evaluate Searle's attempt to provide what he takes to be an approach to understanding MCS that contemporary science should take seriously. In order to get a clear understanding of Searle's position, I will first provide a brief summary of Thomas Kuhn's (1970) idea of a "scientific revolution." Then, I will furnish one explanation of MCS, namely, eliminative materialism (hereafter EM), that embraces current scientific assumptions and strategies to understanding MCS. Subsequently, I will offer Searle's reply to the EM thesis. Next, I will provide a more detailed analysis of (a) key distinctions at work in Searle's understanding of MCS, (b) a critical look at Searle's account of emergent properties, and (c) a more sympathetic reconstruction of how to understand Searle's account of MCS, and (d) the problem of mental causation. This analysis will reveal that the radical nature of Searle's request of the scientific community is nothing short of a Kuhn-type conceptual revolution. Finally, despite Searle's efforts, I will conclude that he has provided the scientific community with little justification for modifying its current practices and assumptions in coming to an understanding of MCS. Moreover, my analysis will suggest that even if the scientific community embraced much of what Searle suggests, it would still have great difficulty in accounting for the nature of MCS as Searle understands it. The conclusion, then, is that there is something amiss in Searle's approach to a scientific understanding of MCS.

I will conclude this opening section by reminding the reader of what is at stake in this analysis. Primarily, Searle is asking members of the scientific community to abandon certain dogmas that blind them from truly understanding MCS. In short, Searle is asking for a Kuhnian-

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<sup>2</sup> Note that "awareness" is another term that could be included here. For example, Crick (1994, p. 21) claims that "visual awareness" is a form of consciousness. See also Ramachandran (2003) for similar discussions.

<sup>3</sup> Much of my analysis will be drawn from one of Searle's (1998a) articles and two of his books (Searle, 1994, 1998b).

type revolution about the ontological status of human internal mental states, which he thinks will corroborate some of his intuitions. In sharp contrast, one member of the philosophical community, who stands as an aegis for contemporary scientific practices in the area of brain sciences, is Paul Churchland (1998). Churchland flatly rejects Searle's insistence that such a radical stratagem is at all needed. Indeed, Churchland insists that current scientific practices will eventually vindicate his belief that mental states, such as emotions and thoughts, are nothing more than neurophysiological properties.<sup>4</sup> Before turning to the details of Churchland's account, let us remind ourselves of Kuhn's understanding of a scientific revolution.

## I. Kuhn & Scientific Revolutions

In route to his account of the general form that scientific revolutions take, Kuhn explains that "normal science" is the solving of problems by scientists through shared paradigms. Paradigms, according to Kuhn, are agreed upon or accepted methodologies (i.e., "models" or "patterns") that are used by members of a scientific community as they attempt to unravel specific problems within their respective sub-fields.<sup>5</sup> Kuhn's own words on how to understand normal science are instructive:

The scientific enterprise as a whole does from time to time prove useful, open up a new territory, display order, and test long-accepted belief. Nevertheless, *the individual* engaged on a normal research problem *is almost never doing any one of these things*. Once engaged, his motivation is of a rather different sort. What then challenges him is the conviction that, if only he is skilful enough, he will succeed in solving a puzzle that no one before has solved or solved well. Many of the greatest scientific minds have devoted all their professional attention to demanding puzzles of this sort. (1970, p. 38)

Note that the puzzle solving of scientists engaged in normal research is done within the confines of a received set of paradigms. It is, however, only after exhaustive efforts and failures of trying to explain an anomaly or a set of anomalies within the received set of paradigms that

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<sup>4</sup> Clark (1999) clearly articulates the question under consideration. He asks: "[H]ow should we conceive the relation between scientific studies of cognition and the folk ontology that depicts minds as the loci of beliefs, desires, concepts, propositional attitudes, etc.?" As will be made clear, Searle thinks that an answer is possible, but Churchland argues that the question itself is meaningless.

<sup>5</sup> Kuhn (1970, pp. 23-25) connects paradigm success and problem resolution as follows: "Paradigms gain their status because they are more successful than their competitors in solving a few problems that the group of practitioners has come to recognize as acute... during the period when the paradigm is successful, the professions will have solved problems that its members could scarcely have imagined and would never have undertaken without commitment to the paradigm." In the postscript to this edition, Kuhn explains (1970, pp. 187-191) paradigms in terms of shared examples. For instance, as a way of showing natural selection in action, many biology texts use the English peppered moth (*Biston betularia*) example. Such an example would be a paradigm in Kuhn's sense of the term. For further details of Kuhn's ideas on the nature and history of science, see Andersson (1994, chap. 3, 2001) and Kuhn (2000).

paradigmatic assumptions or methods are abandoned. It is at this crisis point of renunciation of accepted paradigms that the divorce from normal science and the move to revolution begins to be made manifest.<sup>6</sup> Kuhn describes this revolutionary transformation of the scientist, who has rejected the paradigm *qua desideratum* in favor of one that lacks common consent, as follows:

...[T]he scientist who embraces a new paradigm is like the man wearing inverting lenses. Confronting the same constellation of objects as before and knowing that he does so, he nevertheless finds them transformed through and through in many of their details. (Kuhn, 1970, p. 122)

As Kuhn suggests in the above passage, scientists who have embraced a new paradigm no longer look at the same objects or anomalies in the same way as they did prior to the conversion. As a result of the conversion from one paradigm to another, the converted scientists find themselves in a “brave new world.” Indeed, this notion of conversion is at the heart of what Kuhn takes to be a revolution. He says: “The conversion experience that I have likened to a gestalt switch remains, therefore, at the heart of the revolutionary process” (Kuhn, 1970, p. 204).

In this brief synopsis of Kuhn’s contribution to the philosophy of science, I have offered an account of what he takes a scientific revolution to be. To recapitulate briefly, Kuhn thinks that there are standard examples that govern the normal research of scientists. A revolution occurs, according to Kuhn, when scientists are not able to understand a particular anomalous phenomenon through the use of the accepted standard methods, models, or examples. In order to fill the lacuna presented by the anomaly, some scientists (usually young upstarts) abandon the standard paradigms for alternative ones. This paradigm shift results in a sort of gestalt that allows the scientists to view that same anomaly quite differently than before. Most importantly, for the sake of our discussion, it is the conversion from one paradigm to another that must be kept in mind. As I hope to show, it just this type of conversion that Searle is asking of contemporary cognitive psychologist and neuroscientists to consider, if they hope to make progress in the understanding of MCS.

## **II. Eliminative Materialism**

The following quotation by Churchland best captures the EM view in the current literature on the nature of MCS:

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<sup>6</sup> Kuhn (1970, p. 84) tells us that “[a]ll crises begin with the blurring of a paradigm and the consequent loosening of the rules for normal research.”

[W]hen neuroscience has matured to the point where the poverty of our current conceptions (of mind) is apparent to everyone, and the superiority of the new framework is established, we shall then be able to set about reconceiving our internal states and activities, within a truly adequate conceptual framework at last. Our explanations of one another's behavior will appeal to such things as our neuropharmacological states, the neural activity in specialized anatomical areas, and whatever other states are deemed relevant to the new theory. (Churchland, 1988, pp. 44-45)<sup>7</sup>

Churchland is suggesting in the above passage that a sophisticated enough neuroscience, which we currently do not have, will provide all the answers we will ever need to understand such psychological terms as mind, consciousness, subjective experience, desire, belief, and emotion. Restated, such terms will be eliminated in favor of both neurochemical and neurophysiological explanations.<sup>8</sup> For example, rather than thinking of fear as the conscious or mental state of person X fearing some entity Y, it might be more accurate to say that, according to Churchland, "the neurotransmitter, glutamate, transmitted the unconditioned response of fear through the central amygdala of the limbic system." Thus, in their dogged attack of anything that might resemble a Cartesian-like theory of mind, eliminative materialists, like Churchland, are driven to the conclusion that psychological phenomena/events (e.g., belief, intention, consciousness, or emotion) do not exist. Churchland is quite clear that, except for the "average- Joe-and-Jane-on-the-street," there is nothing to be gained, as far as science is concerned, from attempts to reconcile folk psychology with hard science. On this point, Churchland is unambiguously clear:

The distinguishing feature of this position [i.e., the EM position] is its denial that a smooth intertheoretic reduction is to be expected—even a species-specific reduction—of the framework of folk psychology to the framework of a matured neuroscience. The reason for this denial is the eliminative materialist's conviction that folk psychology is a hopelessly primitive and deeply confused conception of our internal activities. (Churchland, 1988, p. 45)

What, then, does exist for the Churchlands of the world with regard to human psychology? The answer to this question, as is suggested by Churchland in the above quotation, is: Human psychology, in all of its guises, is nothing more than the complex neuronal interactions throughout various parts of the human brain. To get a better understanding of this

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<sup>7</sup> A newer version of this same EM thesis can be found in Churchland (1996). This article is Churchland's attempt to systematically dismantle the central arguments regarding the irreducible nature of consciousness put forth by Searle (and others).

<sup>8</sup> Of course, Churchland does not really mean that a reduction from one entity (i.e., "folk" psychological entities) to another (i.e., biological entities) can actually take place. Since there is nothing (ontologically speaking) to eliminate for Churchland, it follows trivially that there cannot be (ontologically speaking) anything to eliminate (in fact, for Churchland, the "reduction" from "folk" psychological entities to biological entities is understood more accurately as a *translation* from the former to the latter). However, for a critical reply to the eliminative materialist camp, see Mark Leon (1996), Baker (1987, chaps. 6-7), and Lowe (2000, chap 3).

answer, Paul McLean's "Triune Brain Concept" will prove useful. Although this schematic of the human brain is oversimplified, it will do nicely to make clear the EM position. The human brain, according to Mclean, is divided up into three "historical" parts that represent the evolution of brain differentiation. The first and most ancient part of the human brain is the basal ganglia, or the "Reptilian Brain." This region of the brain is the storehouse of the most basic motor plans for primitive behavioral responses to fear, anger, and sexuality. The second "newer" part of the brain is the limbic system or "Visceral Brain." This region of the brain (also called the old-mammalian brain), which does interact with the basal ganglia, produces more complex social emotions (along with fear, anger, and sexuality) that are predominantly restricted to mammals. The "newest" region of the brain, a six-celled-layered region, is known as the neo-cortex, or the "Neo-mammalian Brain." This region, which is varied in both amount of layers and complexity of processes among different mammalian species, yields complex cognitive processes in humans such as reasoning and language.<sup>9</sup>

Given this tri-level picture of the brain, EM can now be brought into sharp focus. The EM view holds that psychological concepts will be eliminated in favor of a theory that explains the complex interaction of the three levels of the brain (i.e., an explanation of how, if at all, the three levels of the brain interact with each other and with various neurochemical processes). Once we have such a theory, all "folk" psychological terms (e.g., mind, emotion, belief, desire, etc.) can be replaced by a more precise neuroscience and its accompanying terms that have not yet come to fruition. (Note that those who defend the EM thesis do not consider that they are confusing "levels of analysis." Other than the complex interaction of "brain stuff," they do not acknowledge any other kind of analysis: There simply is no other level to consider. Moreover, there is no deep concern about what language should be used to refer to particular brain activities by those who embrace the EM thesis, so long as it is clear that the referents are only brain activities.) So, proponents of EM offer a promissory note to all interested parties that there is a science (or theory) of the brain that is forthcoming that will provide all the details of folk psychology purely in terms of neurochemical and neurophysiological processes within the triune brain.

### **III. Searle's Response to EM: Noneliminative Materialism**

Within the philosophical community, Churchland has been met with a backlash of criticisms for his allegiance to EM because such extreme reductionism has been thought by many to be unbearably jejune in the face of phenomenal experience. The general strategy by those who reject EM has been to take seriously a materialist ontology, but simultaneously provide a theory that saves the MCS phenomena. I will not, however, rehearse all of the objections to EM.<sup>10</sup>

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<sup>9</sup> See Panksepp (1998a, pp. 42-43 and pp. 70-72) for an excellent summary discussion of Mclean's "Triune Brain." For a fully detailed discussion, see Mclean (1990).

<sup>10</sup> See Chalmers (1996) for a detailed account of the many objections to EM.

Rather, in keeping with the focus of this paper, I will use Searle as an exemplar of those in the philosophical community who reject EM.

Searle offers the following in response to EM:

We could redefine the word 'consciousness' to mean the neurobiological causes of our subjective experiences. But if we did, we would still have the subjective experiences left over, and the whole point of having the concept of consciousness was to have a word to name those subjective experiences... We need a word to refer to *ontologically subjective phenomena of awareness or sentience*. And we would lose that feature of the concept of consciousness if we were to redefine the word in terms of the causes of our experiences... When we study consciousness scientifically, I believe we should forget about our old obsession with reductionism and seek causal explanations. What we want is a causal explanation of how brain processes cause our conscious experiences. The obsession with reductionism is a hangover from an earlier phase in the development of scientific knowledge. (Searle, 1998a, p. 386)

Searle's point in the above passage is that the term "consciousness" should be used to range over all subjective experiences. Moreover, Searle is stressing that complex brain processes cause an additional element, call it consciousness or subjective experience [or MCS], to come into existence. It is the job of the scientist, according to Searle, to take this causal relationship seriously and to construct a theory about how brain processes can give rise to subjective experience (or MCS). Searle is asking scientists to embrace the view that MCS is a material product of brain processes that requires an explanation that does not fully reduce MCS to brain processes. This position taken by Searle is called *non-eliminative materialism* (NEM). The more controversial claim is the italicized part of the above quotation. Here, Searle is insisting that MCS has an existence for which it must be accounted. Unfortunately, Searle does not offer any substantive hypothesis on how the ontological status of "awareness or sentience" might be understood. Rather, he offers a promissory note in defense of a causal explanation of MCS:

My own guess—and at this stage in the history of knowledge it is only a speculation—is that when we have a general theory of how brain processes cause consciousness, our own sense that it is somehow arbitrary or mysterious will disappear. In the case of the heart for example it is clear how the heart causes the pumping of the blood. Our understanding of the heart is such that we see the necessity. Given these contractions blood must flow through the arteries. What we so far lack for the brain is an analogous account of how the brain causes consciousness. But if we had such an account—a general causal account—then it seems to me our sense of mystery and arbitrariness would disappear. (Searle, 1998a, p. 382)

There are two points in the above passage to which one must be attentive. First, notice that the heart analogy is designed to suggest a non-reductive account of the nature of MCS. Much like blood cannot be reduced to the pumping organ that initiates its movement throughout the body, MCS cannot be completely reduced to the brain stuff that promulgates its activities. According to

Searle, then, X can cause Y, but Y is not fully understood in terms of X. This point about causation will be taken up in section IIIC of this essay. Second, please be attentive to the fact that the above passage is similar to Churchland's defense of EM in one way, but distinct in another. The passage is similar in that once the neurobiological details of MCS are available, MCS will no longer be a mysterious entity: It will be a natural biological phenomenon and not what Ryle (1949, pp. 1-14) attacked as "the dogma of the ghost in the machine."<sup>11</sup> Churchland would be in complete agreement with Searle on this point. The above account, however, is dissimilar to Churchland's EM thesis to the extent that Searle thinks that MCS cannot be completely explained away once the neurobiological details of its origin are furnished. Here is where Churchland and Searle part company. Churchland insists, as the earlier quotation makes clear, that once the neurobiological details of MCS are known, consciousness will simply be understood in terms of the neurobiological details: There will be no other phenomenon for which to account. Searle, in sharp contrast, proffers that a new phenomenon, distinct from the causal neurobiological details, comes to exist. This new phenomenon, according to Searle, is consciousness (or what I have called MCS), a phenomenon that cannot be completely eliminated, but must be understood as a "real" phenomenon that requires a causal explanation for its existence.

#### **IV. The Details of Searle's Account**

##### ***A: Distinctions Explained***

To begin, we need to be clear on exactly what kind of phenomenon Searle thinks consciousness designates. He says:

"Consciousness" refers to those states of sentience or awareness that typically begin when we wake from a dreamless sleep and continue through the day until we fall asleep again, die, go into a coma or otherwise become "unconscious"... [C]onsciousness, so defined, is an inner qualitative, subjective state typically present in humans and the higher mammals. (Searle, 1998a, p. 381)

The above quotation makes quite clear what Searle thinks consciousness is. Consciousness is simply the internal experiences that people have during their waking states. For example, visual experiences, auditory experiences, tactile experiences, olfactory experiences, emotional experiences, sense of self, and so forth, are a partial list of the inventory of experiences that Searle would include in his account of what it means to be conscious. Note that Searle is careful here to keep consciousness distinct from (1) attention and (2) self-

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<sup>11</sup> Ryle (1949, p. 27) also was objecting to the view that the mind is "a 'place' where they [i.e., people] conduct their secret thoughts."



consciousness, both of which pose additional difficulties that he thinks only confuse the issue at hand.

In order to get a more detailed understanding of Searle's reply to Churchland, a further distinction that Searle makes must be explained. This distinction is the difference between (1) an objective-subjective distinction in an epistemic sense, and (2) an objective-subjective distinction in an ontological sense. Searle (1998a, p. 381) explains (1) as follows: "In the epistemic sense, objective claims are objectively verifiable or objectively knowable, in the sense that they can be known to be true or false in a way that does not depend on the preferences, attitudes or prejudices of particular human subjects." For example, regardless of any person's psychology, the truth-value of the claim that Michael Jordan has won the NBA scoring title 10 times can be known by anyone. In contrast, the truth-value of the subjective claim that vanilla ice cream is a better flavor than is chocolate ice cream is inextricably a part of the psychology of the person who makes such a claim. Of course, it can be known to be true or false (in an epistemically objective sense) whether a person made such a claim about vanilla ice cream in relation to chocolate ice cream. It cannot be ascertained, however, whether the content of the statement is true or false in the same way that one knows the truth or falsity of the number of scoring titles Michael Jordan has accumulated throughout his professional career. It is because of this inability to get at (i.e., test for) the truth or falsity of, for example, whether vanilla ice cream is a superior flavor of ice cream to chocolate ice cream that Searle labels such opinions as epistemically subjective.

In contrast to the epistemic sense of the objective-subjective distinction, Searle makes another distinction that he calls the *ontological sense* of the objective-subjective distinction. In Searle's (1998a, p. 381) own words, "Some entities have a subjective mode of existence. Some have an objective mode of existence." For example, the pleasure I get from eating vanilla ice cream is ontologically subjective to the extent that such a pleasure is only experienced by me: Ontologically subjective phenomena require a human or animal for their existence. Searle stresses just this point when he says that, "[i]n this sense, all conscious states are ontologically subjective because they have to be experienced by humans or non-human animals in order to exist" (1998a, p. 381). Likewise, ontologically objective phenomena that are independent of human or non-human animals also exist, according to Searle. For example, the sea, a glacier, and a mountain are all ontologically objective phenomena. Moreover, these entities exist on the planet Earth regardless of whether or not humans or non-human animals are present to perceive them.

Given these two sets of distinctions, Searle claims that MCS is an ontologically subjective phenomenon. He says, "the fact that science seeks objectivity in the epistemic sense *should not blind us* to the fact that there are ontologically subjective entities that are as much a matter of scientific investigation as any other biological phenomenon" (Searle, 1998a, p. 382). The interesting question is: Can we have epistemically objective knowledge about ontologically subjective phenomena? Restated, is there a way to explain scientifically first-person ontologically subjective experiences from a third-person point of view? McGinn addresses the question quite nicely with intentionality as his exemplar:

What philosophers interested in intentionality [MCS more generally] have wanted is some kind of account of what the intentional relation itself consists in—what it is for the mind to be directed onto things outside itself when we are thinking or desiring or perceiving. What is this mysterious relation of “aboutness” that our various mental states exhibit? What is the nature of mental representation? (McGinn, 1999, p. 46)

McGinn's general concern in the above quotation is whether or not it is possible to provide an exact (scientific) account of the underlying nature, or “aboutness” as he calls it, of intentionality [MCS].

Unfortunately, Searle is of little help to McGinn's query. Searle claims that ontologically subjective phenomena exist and can be made intelligible by our contemporary science, but he does not propose any kind of direction in which this inquiry should go, given his own account of MCS. Searle simply claims that it is possible to have (1) epistemically objective knowledge about (2) ontologically subjective phenomena, which (3) takes seriously ontologically subjective phenomena in the sense that they are not reduced to the brain processes that gave birth to their existence. Moreover, Searle insists (4) that it is the job of science to show how this causal process from brain stuff to MCS stuff is possible. The key, according to Searle, is to accept (2) as a starting point from which to acquire (1); but to accept (2) as what? Searle's reply is, “[W]hat I really mean is consciousness *qua* consciousness, *qua* mental, *qua* subjective, *qua* qualitative is *physical*, and physical *because* mental” (1994, p. 15). Notice that this reply is itself rather obscure. Searle could mean that mental properties are simply higher-level properties of the brain. Charitably, this interpretation suggests that mental properties (MCS) are physical features of the brain.<sup>12</sup> This claim by Searle, however, offers very little about the metaphysical status of these mental properties. Are these mental properties nothing more than the complex interaction of the tri-level picture of the brain I presented earlier? Searle clearly thinks (in the first quotation of the previous section) that the answer is “no” because the subjective experience would still be left over (see quotation on p. 171). Then how are we to understand mental properties? I will now turn to a few of Searle's own examples, which may prove helpful in answering this question about the metaphysical status of mental properties.

### ***B: Searle on Emergent Properties and Mental Causation: A Critical Look***

I take it, from his own examples, that Searle considers MCS to be a quality, albeit, a rather special quality. For example, it is a fact that when certain molecules (e.g., hydrogen and oxygen molecules) combine at a certain temperature, the quality of hardness comes into

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<sup>12</sup> Kim (1995, p. 192) interprets Searle in this way as well. Kim also voices his concern about how Searle treats the metaphysical status of mental properties. Less charitably, Kim hints that Searle's account of the mental smacks of dualism. In Kim's own words, “Are these higher-level physical features of the brain (a.k.a. mental properties) reducible to, or reductively identifiable with, the lower-level properties (on which they supervene)? Searle's answer, like the property dualist's, is a forceful no. But it is precisely this negative answer that defines property dualism.”

existence (e.g., the hardness of ice). In much the same way, Searle thinks that when certain neurobiological and neurochemical processes combine in the brain, the MCS feature comes into existence. Searle summarizes his position quite succinctly as follows:

It [MCS] is an *emergent feature* of certain systems of neurons in the same way that solidity and liquidity are emergent features of systems of molecules. The existence of consciousness can be explained by (1) the causal interactions between elements of the brain at the micro level, but consciousness cannot itself be deduced or calculated from sheer physical structure of the neurons without some additional account of (2) the causal relations between them. (1994, p. 112)

There are two interconnected points that need to be discussed as part of a reply to Searle's claim in the above quotation. The first point has to do with Searle's analogy between emergent properties distinct from the human brain and emergent properties of the brain. The second point has to do with the causal interaction between MCS and its neurophysiological/chemical substrates. Each of these points will be addressed in turn.

As was hinted above, emergentism is the view that, as the constituents within systems interact with one another at a certain level of complexity, unique features come to exist as part of the system. These novel features or properties have their origin in the interaction of the constituent parts of the system to which they belong, but are not reducible to their constituent parts. Kim nicely articulates the concept of emergentism as an alternative to both EM and Cartesian-dualism as follows:

Everything that exists is constituted by matter, or basic material particles, there being no "insertion" of alien entities or forces from the outside. It is only that complex systems aggregated out of these material particles begin to exhibit genuinely novel properties that are irreducible to, and neither predictable nor explainable in terms of, the properties of their constituents. It is evident that emergentism is a form of what is now standardly called "nonreductive materialism", a doctrine that aspires to position itself as a compromise between physicalist reductionism and all-out dualism... Prominent among them [i.e., emergentists] is the claim that the emergents bring into the world new causal powers of their own, and in particular, that they have powers to influence and control the direction of the lower-level processes from which they emerge. (Kim, 1999, p. 4 & pp. 5-6)

Kim only offers emergentism as a reply one might advance against (1) EM or (2) dualism. It is clear from his discussion that Kim does not endorse emergentism as a viable option to (1) or (2).

In summary, emergentism has the following five characteristics:

- (1) The only things that exist in the world are material particles and their aggregates,

- (2) unique properties do emerge out of the complex interaction of constituent parts of systems,
- (3) emergent properties are irreducible to their constituent parts,
- (4) emergent properties are both unpredictable and unexplainable from the laws governing the constituent parts from they come to be, and
- (5) emergent features produce novel causal powers that are able to have a causal impact on the material constituent parts from which they have arisen.

With these elements of emergentism in hand, we can return to Searle's discussion.

To understand to what extent Searle embraces the five characteristics of emergentism noted above, I will examine Searle's claim that solidity and liquidity are the appropriate analogues to MCS. He says: "Consciousness is not a 'stuff,' it is a feature or property of the brain in the sense, for example, that liquidity is a feature of water." (Searle, 1994, p. 105)<sup>13</sup>

Searle also says:

Solidity is caused by the behavior of molecules. Specifically, when the molecules move in vibratory movements within lattice structures, the object is solid. Now, somebody might say "Well, but then solidity consists in nothing but the behavior of the molecules", and in a sense that has to be right. *However, solidity and liquidity are causal properties in addition to the summation of the molecule movements.* Some philosophers find it useful to use the notion of an 'emergent property.' I don't find this a very clear notion, because it is so confused in the literature.<sup>14</sup> But if we are careful, we can give a clear sense to the idea that consciousness, like solidity and liquidity, is an emergent property of the behavior of the micro-elements of a system that is composed of those micro-elements. *An emergent property, so defined, is a property that is explained by the behavior of the micro-elements but cannot be deduced simply from the composition and the movements of the micro-elements.* (Searle, 1998a, p. 385)<sup>15</sup>

Although Searle does not like the term emergent property, let us assess to what extent Searle is an emergentist of the sort whose five characteristics were noted above. First, until we acquire a clear account of what kind of feature or property MCS is for Searle, we cannot be sure

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<sup>13</sup> In this same text, Searle claims, "Conscious mental states and processes have a *special feature* [italics added] not possessed by other natural phenomena, namely, subjectivity." (1994, p. 93) Charitably, I will here assume that by "special feature" Searle means that brain matter of sufficient complexity has this special feature of subjectivity in addition to being a solid.

<sup>14</sup> For a discussion on the reason why there has been some confusion about what is an emergent property, see Kim (1999, pp. 9-13) and Jackson (1996).

<sup>15</sup> For a similar discussion, see Searle (1984, pp. 20-23).

that Searle thinks that all the things that exist in the world are material particles and their aggregates. For now, let us tentatively accept that Searle does embrace this first element of emergentism. I will later suggest that ascribing this characteristic of emergentism to Searle is correct, but requires that we rethink what exists in the world.

Second, Searle agrees with characteristic two of emergentism in the above passage, namely, that MCS is a unique property that emerges out of the complex interaction of its constituent parts. Thus, much like liquidity, transparency, and solidity come to be out of the interaction of their base properties, it is also the case, thinks Searle, that MCS comes to exist as a result of the interaction of its base properties.

Third, since Searle has rejected the EM thesis, it might seem reasonable to claim that he does not think that MCS is reducible to its component elements. Actually, we should be careful here. As I noted earlier, Searle thinks that MCS could be redefined in terms of the findings of neuroscience, but he thinks that such a move would banish MCS itself from the analysis. Rather, he thinks that the causal relationship between neuroscience and MCS is the correct point of focus. Moreover, since he also thinks that there would be a subjective experience still to be explained after all the neuroscience has been provided, a view clearly denied by a Churchland-type of EM, Searle would most likely reject the view that MCS is reducible to its component elements.

Fourth, given that Searle thinks that MCS can be explained, but not deduced, from its micro-structure (in the above passage), it is difficult to assess whether or not he thinks MCS is an emergent property that is both unpredictable and unexplainable. Actually, since he tells us it can be explained by a causal explanation, Searle does think that an explanation of MCS is possible. As he notes in the above passage, he thinks a causal explanation of how our neurobiology produces MCS is what is needed. What Searle is suggesting is that we should assume Y (MCS) to exist. Then, we should assume that X (neurons) brings about Y. Finally, we qua neuroscientists ought to go about providing the causal details of the fact that X brings about Y.

What the neuroscientist cannot provide, thinks Searle, is an account of how Y can be deduced from X. There are two ways of interpreting what Searle means here. The first is in terms of "bridge laws." On this interpretation, a deduction can occur when an inference is made from a general law or principle. For example, a water molecule (Y) comes into existence when two hydrogen atoms interact with an oxygen atom (X). Restated, there does exist a law or principle of bonding (e.g., a polar covalent bond), which makes it the case that when two hydrogen atoms interact with an oxygen atom, a new property, a water molecule, comes into existence. Thus, whenever X is present in the appropriate manner, Y must be present as well. Given this law of bonding, it is possible to deduce the existence of the water molecule (Y) upon knowing that two hydrogen atoms have bonded with a single oxygen atom. It could be the case that it is just this type of deduction of Y from X via a "bridge law" that Searle does not think is possible in the case of MCS. Restated, Searle does not think that the existence of MCS (Y) can be deduced from the physical causal laws associated with neurons firing in the appropriate manner (X).

I think that the bridge law interpretation of “deduced” is not the rendition that Searle would be quick to embrace. Primarily, he simply does not make mention of bridge laws in his discussion. Second, the underlying assumption of the bridge law is that a law connects/reduces the objects and events of one system with that of another system. Since Searle does not seem to conceive of MCS as a system or distinct entity, it is not likely that he thinks that any laws at the physiological level can reduce MCS. Rather, Searle’s concept of MCS is that of a feature of brain activity. Thus, it does not seem appropriate to ascribe this bridge law interpretation to Searle’s notion of deduce.

Yet, there is another way to make sense of the difference between (1) explained by and (2) deduced from that does capture Searle’s account. The following distinction between inductive predictability (IP) and theoretical predictability (TP) will be of much help here. Kim offers that following distinction between (IP) and (TP) in the following manner:<sup>16</sup>

**(IP)→** Having observed that an emergent property, *E*, emerged whenever any observed system instantiated a microstructural property *M*, we may predict that this particular system will instantiate *E* at *t*, given our knowledge or belief that it will instantiate, *M*, at *t*.

**(TP)→** Once we know all that can be known about *M*—in particular, laws that govern the entities, properties and relations constitutive of *M*—this knowledge does suffice to yield a prediction of *E*. (Kim, 1999, p. 8)

For example, water qua liquidity is an emergent property, because it has been observed that whenever there is an interaction at time *t* between two hydrogen atoms and one oxygen atom, the micro-structural property in the form of a polar-covalent bond is instantiated (*M*). Moreover, from the presence of the polar-covalent bonding of two hydrogen atoms and one oxygen atom, the property of liquidity emerges. It is the presence of this polar-covalent bond that allows us to predict the instantiation of an additional observable property, which is liquidity (*E*). Thus, based on past instances of the polar-covalent bonding between hydrogen and oxygen molecules at time *t*, we can inductively predict that the observable property of liquidity will emerge at time *t* or *t+1*.<sup>17</sup>

Notice that an underlying assumption of IP is that there exist two “levels” (a micro-structural level and a macro-structural level) which require explanatory concepts that do not overlap. With respect to the water example, the concepts at the micro-structural level would include those related to atomic theory and the physics of energy exchange across the different energy levels (i.e., “shells”) of the nucleus of an atom. Nothing at this micro-structural level would include a concept for liquidity because liquidity is a phenomenal property that is not

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<sup>16</sup> Note that Kim’s version of TP is constructed in a way that makes it clear that emergentists reject it. I have modified TP to give it a neutral interpretation.

<sup>17</sup> I added “t+1” because it is not likely that a single water molecule will produce a large enough size of liquid that can be easily observed. Given that many water molecules must be present together in order that an observable amount of liquid is made manifest, this will take more time than “t.”

present in molecular activities. It is the result of the observation of the liquid property that prompts an investigator to call out "look at this phenomenon!" It is this phenomenal experience of observing what cannot be observed in micro-structural level activities that captures what is being called a "macro-structural level." The concept of liquidity, then, is used to refer to the emergent property of the interaction between two hydrogen atoms and an oxygen atom that is part of the macro-structural level and not the micro-structural level.

In contrast to IP, TP is the view that it is possible to predict liquidity (E) *based on* the complete knowledge of all the laws associated with polar-covalent bonding of hydrogen and oxygen atoms (i.e., micro-structural phenomena). On this interpretation, there no need to posit two levels, which would require distinct non-overlapping concepts. Indeed, according to TP, it should be possible *to deduce* a property like liquidity from its micro-structure without ever observing liquidity, because all relevant data are available at the micro-structural level. Much like the idea of a valid deductive argument (the principle that whenever the premises are true, then we can be absolutely sure that the conclusion will be true), TP is the axiom that all relevant inferences can be drawn about a given system so long as all the relevant information about the system is known. Thus, liquidity as a concept is fully captured by the concepts that are employed at the micro-structural level without the need of having to observe liquidity. Thus, IP is distinguished from TP in that IP propositions are not necessity or "absolute" claims, as are TP claims. Rather, IP claims are probability claims based on past observed instances of certain phenomena.

Now, with the distinction between IP and TP in hand, we can return to Searle's discussion and determine if he thinks that MCS is an emergent property that can be neither predicted nor explained. When Searle tells us that MCS can be explained by, but not deduced from, its micro-structure, he means that it is possible to provide an IP account/explanation of MCS as an emergent property. Moreover, it is clear that he rejects the possibility of being able to provide a TP account of MCS, since he thinks that MCS "cannot be deduced simply from the composition and the movements of the micro-elements." Note that if one thinks of prediction and explanation in a TP sense, then Searle rejects that MCS can be either predicted or explained. If, however, one thinks of explanation and prediction in terms of IP, then Searle thinks that both prediction and explanation are possible. Thus, depending on the definition of "predict" and "explain" being employed, Searle does embrace the fourth characteristic of emergentism: that MCS is an emergent property that cannot be either TP explained or predicted, but can be IP explained and predicted.

Still, if we grant that Searle does accept an IP explanation of MCS, an account of the nature of MCS is still needed. In the first quotation above, Searle is clear that MCS is not a stuff. I understand Searle to mean that MCS is not matter. To understand Searle's point clearly, let us first be careful how we understand matter. Matter is traditionally thought to be anything that (1) has mass and (2) takes up space. Liquids and solids, which satisfy (1) and (2), are ways in which matter can exist or are forms, states, or phases of matter (gas and plasma as well). For example, water is a token liquid that has the feature of liquidity. Similarly, steel is a token solid that has the feature of solidity. When Searle claims that MCS is a feature of the brain, he appears to mean that there exists another state, form, or phase of brain stuff, namely, MCS, in which matter

can exist. In other words, brain stuff is a token solid that has the feature or property of not only solidity, but also MCS. Moreover, much like water and alcohol are different liquids that both possess the property of liquidity, different organisms, for instance, monkeys and dogs, could possibly have different tokens of the state MCS, given that the necessary brain stuff were present in them. So, Searle would, I believe, affirm the view that matter can exist not only in the form or state of solid, liquid, gas, or plasma, but also in the form of MCS.

The second quotation above (p. 176) continues the analogy between solidity/liquidity and MCS. What can Searle mean when he claims that “solidity and liquidity are causal properties *in addition to* [italics added] the summation of the molecule movements”? Restated, what does Searle mean by a causal property? Without a clear answer to this question, it will not be possible to understand accurately his definition of an emergent property. He could mean one of two things (or both). One, he could mean that a causal property is any property that is caused to come into existence as a result of the interaction of its constituent parts. It is this newly existing property that could capture Searle’s sense of “in addition to.” Two, he could mean that a causal property itself has causal powers beyond those of its constituent parts. It is this new causal property which inheres in the newly existing property that captures Searle’s sense of “in addition to.”

The above second quotation is ambiguous enough to suggest that either of the interpretations noted above is possible. However, surely Searle does not mean by emergent property only that which comes to exist as a result of the interaction of its constituent parts. For if this is all that he means, then all forms of matter are causal properties, because all of them (i.e., solid, liquid, gas, and plasma) come to exist as a result of the interaction of their constituent parts. So, it must be the second version of causal property—the existence of causal powers beyond those of the causal property’s constituent parts—that Searle must be defending, right? Well, it is unclear given this additional resource that Searle offers:

[C]onsciousness is a causally emergent property of systems. It is an emergent feature of certain systems of neurons in the same way that solidity and liquidity are emergent features of systems of molecules. The existence of consciousness can be explained by the causal interactions between elements of the brain at the micro level, but *consciousness cannot itself be deduced or calculated from the sheer physical structure of the neurons without some additional account of the causal relations between them.*

This conception of causal emergence, call it “emergent1,” has to be distinguished from a much more adventurous conception, call it “emergent2.” A feature *F* is emergent2 if *F* is emergent1 and *F* has causal powers that cannot be explained by the causal interactions of *a*, *b*, *c*. . . If consciousness were emergent2, then consciousness could cause things that could not be explained by the causal behavior of the neurons. The naive idea here is that consciousness gets squirted out by the behavior of the neurons in the brain, but once it has been squirted out, it then has a life of its own.

It should be obvious...that on my view consciousness is emergent1, but



not emergent<sub>2</sub>. In fact, I cannot think of anything that is emergent<sub>2</sub>, and it seems unlikely that we will be able to find any features that are emergent<sub>2</sub>, because the existence of any such features would seem to violate even the weakest principle of the transitivity of causation. (1994, pp. 112)

First, observe that Searle thinks that there are two types of emergentism: a conservative version and an ambitious rendition. Emergent<sub>1</sub> is the conservative version of emergentism. The main idea that can be gleaned from emergent<sub>1</sub> is that MCS is an emergent property that comes to be from the causal interaction of its constituent parts. It is not the case, thinks Searle, that MCS is an emergent property that has new novel properties that cannot be explained by its base properties. Rather, MCS is a causal emergent property in the sense that its existence is owed to the causal interaction of its constituent parts.

In contrast to emergent<sub>1</sub>, there is another ambitious interpretation of emergentism that Searle labels emergent<sub>2</sub>. This version of emergentism not only attributes the existence of MCS to the causal interaction of its constituent parts, but MCS as an emergent property also produces unique causal powers which are able to affect the constituent parts themselves (i.e., top-down causal powers). Moreover, these novel causal powers of MCS exist without having their existence be attributed to the causal interaction of the base properties. It is this "radical" version of emergentism (emergent<sub>2</sub>) that Searle rejects. Rather, he thinks that emergent<sub>1</sub> is the correct type of emergentism from which to understand MCS. The further upshot of this analysis is that Searle would reject the fifth criterion of emergentism: the idea that an emergent property has novel causal powers that can have an independent influence (i.e., independent of the material base elements) on the material elements from which it came forth.

I think there is tension in the claims Searle offers. In the first paragraph of the quotations above, Searle claims MCS is a causally emergent property. I take this to mean that there is a property called MCS, which has causal powers of its own. I think this interpretation is corroborated by Searle's earlier claim that:

*...[S]olidity and liquidity are causal properties in addition to the summation of the molecule movements.* Some philosophers find it useful to use the notion of an 'emergent property.' I don't find this a very clear notion, because it is so confused in the literature. But if we are careful, we can give a clear sense to the idea that consciousness, like solidity and liquidity, is an emergent property of the behavior of the micro-elements of a system that is composed of those micro-elements. (Searle, 1998a, p. 385)

Thus, according to Searle's own analysis above, in the same way that solidity and liquidity are causal powers beyond their constituent parts, MCS is a causal power beyond its constituent parts. Recall that the fifth criterion of emergentism is that emergent features (1) have or produce novel causal powers (2) that are able to have a causal impact on the material constituent parts from which they have arisen. It is clear from the above passage that Searle thinks that MCS is an emergent property that has novel causal powers, but it is not conclusive whether or not these causal powers of MCS are actually able to influence (top-down causation) the micro-structure from which they emerged. Be that as it may, the following passage does suggest that Searle

thinks that MCS does have top-down causal efficacy. In order to make his point against the idea that MCS is merely epiphenomenal, Searle offers the following:

The solidity of a piston is entirely explainable in terms of the behavior of the molecules of the metal alloys of which the piston is composed; and for any macro level explanation of the workings of my car engine given in terms of pistons, the crank shaft, sparkplugs, etc., there will be micro levels of explanation given in terms of molecules of metal alloys, the oxidation of hydrocarbon molecules, etc. But this does not show that the solidity of the piston is epiphenomenal. On the contrary such an explanation explains why you can make effective pistons out of steel and not out of butter or paper maché. Far from showing the macro level to be epiphenomenal, the micro level of explanation explains, among other things, why *the macro levels are causally efficacious*. That is, in such cases the bottom-up causal explanations of macro level phenomena show why the macrophenomena are not epiphenomenal. An adequate science of consciousness should analogously show how my conscious decision to raise my arm causes my arm to go up by showing how the consciousness, as a biological feature of the brain, is grounded in the micro level neurobiological features[italics added]. (Searle, 1998a, p. 383)

In the above passage, Searle is quite clear to note that macro level phenomena, such as MCS, are causally efficacious. What could this claim mean? As I understand it, *causally efficacious* means that if X is causally efficacious, then X is able to have a causal influence on Y. I take it that if MCS qua macro-level phenomenon is causally efficacious, then either (1) it is able to causally influence its neurophysiology or (2) causally influence other complex macro-level phenomena (e.g., other beliefs). Moreover, since Searle has made it clear in the previous quotation that he thinks that MCS has causal powers beyond its micro-level processes (like solidity and liquidity), it is clear that MCS must causally influence its micro-level processes and/or other macro-level phenomena. What I take Searle to be suggesting in the above passage, is that a sophisticated enough biological science should be able to explain (in terms of IP) what the neurobiological causal process is that brings about MCS and its causal powers. As Searle suggests, science needs to offer a causal account of how it is the case that MCS qua a decision is able to get my hand to move. Restated, Searle is looking for a scientific explanation of how it is the case that a mental phenomenon, such as a decision, is able to have causal influence on the micro-level biology that brings about physical bodily movements.

If the above interpretation of Searle's scientific theory of MCS is correct, then there is a causal interaction between MCS and its constituent parts. I interpret "between" to mean that the interaction is a "two-way street." I understand this interaction to mean that not only are the constituent parts able to effect MCS (what is known as bottom-up causation), but MCS is also able to affect its constituent parts (what is known as top-down causation). Indeed, as part of his reply to epiphenomenalism, Searle concedes just this:

If someone says to me "secrete acetylcholine at the axon end plates of your motor neurons or I will blow your brains out!" I will swiftly do some downward causation, e.g.,

by trying to raise my arm, which I know will cause the secretion of acetylcholine. Here the higher order mental state causes the lower order physiological event. (Searle, 1995, p. 219)

So, according to Searle, a causal property can be one in which there is both a bottom-up and a top-down causal relationship between the emergent property and the base properties that produced it. Yet, if this analysis is correct, then Searle's account is much more akin to emergent<sup>2</sup>—a causally interactive property—than he is willing to concede. Be that as it may, the further upshot of this analysis is that Searle does appear to acknowledge tacitly that MCS has novel causal powers that cannot be deduced from its micro-level properties. Thus, Searle's version of emergentism does include all five characteristics of emergentism noted earlier in this section.<sup>18</sup>

The implication of the above conclusion is Searle's account runs contrary to the exclusion argument from epiphenomenalism.<sup>19</sup> To the point, Searle's account allows for the existence of non-identical and irreducible physical phenomena, which, according to our current science, should not be included in the class of causally efficacious phenomena.<sup>20</sup> Rather, according to the exclusion argument, such irreducible phenomena are considered to be nonphysical or immaterial entities. This suggests that Searle must accept that some higher mental states, which have downward causal powers, are nonphysical or immaterial phenomena or he would do well to eliminate talk of downward causation.

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<sup>18</sup> I will not here focus on the various ways emergentism has been understood in the literature. For some discussions on emergentism, see Bedau (1997) and Gillett (2002).

<sup>19</sup> The exclusion argument has three components: (1) Identity Claim → All individuals are identical to microphysical individuals and all properties are identical to microphysical properties; (2) Determination Claim → All microphysical events are determined by prior microphysical events and the laws of physics; (3) Composition Claim → Entities (e.g., properties, dispositions, behaviors, or structures) existing or coming to be are comprised of only material parts (physical monism).

<sup>20</sup> In what can be viewed as deference to something like the exclusion argument, Jackson (1996, p. 378) notes, "[I]t is widely believed that the physical sciences...can in principle give a complete explanation for each and every bodily movement, or at least can do so up to whatever completeness is compatible with indeterminism in physics. In this regard, we do not differ from motor cars or plants. It is not plausible that in order to explain the behavior of a motor car we need to go outside the resources of the physical sciences, and the same goes for the growth of plants since the demise of vitalism. I will take it for granted that the same goes for us..."

***C: The Complex Nature of Matter: Possible Interpretations***

Up to this point of the discussion, my analysis of Searle's project has been mostly of a critical and exegetical synthesis. I will here try to offer, however, a few plausible readings of how Searle might think MCS should be understood. The following interpretations of how Searle might understand the nature of MCS could remove the concern of others (and Searle himself) that I have erroneously suggested that Searle is really nothing more than a "closet dualist." Yet, even after offering these additional interpretations, I will suggest that Searle's account of the nature of MCS is still problematic.

One interpretation of MCS that Searle could offer, though he does not, is that MCS could be thought of as "the *force* of neurobiological activities" much like the *force* of gravity (or the *force* of natural selection).<sup>21</sup> Certainly Searle leaves this possibility open when he says that "the fact that the consciousness of others is 'unobservable' does not by itself prevent us from getting a scientific account of consciousness. Electrons, black holes and the Big Bang are not observable by anybody, but that does not prevent their scientific investigation" (1998a, p. 381). The explanation could proceed as follows:

There exists a force of attraction that arises between objects by virtue of the quantity of matter in the objects themselves (i.e., their mass). More specifically, mass is the tendency of an object to resist being moved (if it is stationary) or to resist a change in speed or direction (if it is moving). Moreover, this force called gravitation, which is proportional to the mass of the objects and decreases as their distance increases (and vice versa), attracts objects to one another. For example, let the Earth and its moon be the objects under consideration. If the Earth's moon were twice its current size (and the distance remained the same), then the gravitational force (pull) between the Earth and its moon would be two times greater than it actually is. However, if the Moon were half the distance from the Earth (and the moon was also twice its actual mass), then the gravitational force between the Earth and its moon would be four times as great as it currently is. Lastly, gravity is a force that is thought to exist as a relational property, even though it is itself not visible. Claims made about the ontological status of gravity are based on inferences about how objects interact.

Much like the force of gravity, Searle could argue, MCS is a force that emerges as a result of the nature of the relationship between neurons or sets of neurons. It is possible that certain ensembles of neurons and corresponding chemistries in the brain not only produce MCS but are affected in certain ways in the presence of MCS (similar to gravitational effects on objects as they enter or exit the Earth's atmosphere). As Searle concedes, however, given the fact that modern neuroscience is at its infancy (unlike modern physics regarding the motion of

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<sup>21</sup> Searle (1998a, p. 385) discusses the force of gravity as a "constant operating force" with regard to the concept of causation. However, he does not use it to support his general claim that MCS has a unique ontology. See also Toulmin (1953, pp. 129-139) regarding why the ontological status of theoretical entities need not be dismissed when no demonstration of their existence is immediately forthcoming.

objects<sup>22</sup>), the kinds of details that are available with regard to gravity are not yet available with regard to MCS. Nonetheless, as I suggested early in this discussion, Searle could be claiming (with his promissory note) that once enough of the neuroscience is available, it will then be possible to understand MCS as a relational property like gravity. Searle could, therefore, be interpreted as suggesting that the ontological status of MCS would be that of a relational property similar to that of gravity.

The advantages of thinking of MCS as a force are as follows. First, it could provide a reply to the proponents of EM. It could be argued that to reduce gravity to nothing more than the relative distance and interaction between two objects (or more) of a certain mass would be to provide an incomplete analysis. Since it is the case that this force is able to act on other bodies that happen to come within its range, it is vital that this relationship be captured in order to explain fully what is happening. For example, certain objects that come within a certain distance of the Earth are “pulled” toward it due to this force of gravity, not directly because of the distance, mass, and arrangements of planets and their orbiting satellites, which is a causal property.

Now, one can imagine that those in the EM camp would immediately reply, “But gravity simply is the complex interaction of the distance, mass, and arrangements of planets and their orbiting satellites. You, Searle, have provided very little to suggest that the reduction does not go through. The fact that gravity does have an influence on other objects says nothing about gravity as a relational property of planets and their orbiting satellites. In much the same way that gravity exists, MCS is simply the complex neurobiology arranged in a certain fashion(s).” Those in the EM camp would not be very convinced by Searle’s possible move to think of MCS as a relational force like gravity. They would insist that the comparison between gravity and MCS is not analogous in the way that Searle might think it is.

Although this may not be a reply by those in the EM camp, there is a yet subtler point than the one noted above that would also make the analogy between gravity and MCS dubious. As we have seen, Searle thinks that it is possible to be in and out of consciousness during waking states and sleep respectively, even in the presence of all the neurobiology. That is, there is a certain neurobiological state in which MCS does not exist at all. As long as different masses are present, however, gravity is always a force that is present, no matter how small the force might be, it never exists potentially as long as the planets and their orbiting satellites are present. Given this stark difference between gravity and MCS, it follows that gravity is not a relational property like MCS. Both this argument and the one in the previous paragraph suggest that Searle should not employ (and he does not) the force of gravity as his analog to MCS.

First, the immediate response to Searle’s first point might be something like this. Yes, hardness (or solidity or liquidity) is a property that emerges out of the complex interaction of

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<sup>22</sup> Of course, this picture of modern physics as a “mature” science has its difficulties as well and should be taken as illustrative only. For what can be viewed as an objection to the notion that our current physics is at its maturity, see chapter 5 of Brian Greene (1999).

certain molecules. Nonetheless, it is, in fact, possible to reduce the quality of hardness to the various molecular interactions. The hardness of ice just simply is a particular molecular structure. In the same way, it can be argued, MCS just is the complex interaction of brain stuff. Searle recognizes this point, but suggests that there is an asymmetry in the comparison between MCS and other processes (e.g., color and heat) that occur in the world:

But where the phenomenon that we are discussing is the subjective experience itself, you cannot carve off [reduce] the subjective experience and redefine the notion in terms of its causes, without losing the whole point of having the concept in the first place. [1] The asymmetry between heat and color [or hardness of ice] on the one hand and consciousness on the other has not to do with the facts in the world, but rather with our definitional practices. *We need a word to refer to ontologically subjective phenomena of awareness [MCS]...* [2] You can't make the appearance-reality distinction for conscious states themselves, as you can for heat and color because for conscious states, the existence of the appearance is the reality in question. [3] If it seems to me that I am conscious then I am conscious. And that is not an epistemic point. It does not imply that we have certain knowledge of the nature of our conscious states. On the contrary we are frequently mistaken about our own conscious states, as for example in the case of phantom limb pains. [4] It is a point about the ontology of conscious states. (Searle, 1998a, p. 386)<sup>23</sup>

I wish to examine each of the four points Searle has made in the above quotation. First, what does Searle mean by "our definitional practices"? The issue at hand is not, as Searle seems to be suggesting, whether or not some particular academic community can actually agree upon a term to refer to a particular phenomenon. Rather, the point is exactly what Searle has assumed, the actual existence (in an ontological sense) of MCS. Of course, if it could be determined that MCS actually does exist (as something more than the complex interaction of brain stuff) within the triune brain, then it is rather trivial what name should be attached to the phenomenon. For example, "hardness" could just as well have been labeled "blahness" once it was known that such a quality comes to exist as a result of certain causal molecular processes. The point is not that the label attached to MCS is of prime importance, but that this phenomenon actually does come to exist as something more than complex neuronal interactions. Searle has simply begged the question that requires a full explanation from which an agreed-upon definition can be constructed (i.e., necessary and sufficient conditions).

Note that Searle does provide an indirect reply to the EM thesis, which I take to be an indirect reply to my question-begging criticism about ontology in the above paragraph. He says, "We could redefine the word 'consciousness' to mean the neurobiological causes of subjective experiences. But if we did, *we would still have the subjective experiences left over* [italics added], and the whole point of having the concept of consciousness was to have a word to name

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<sup>23</sup> Chalmers (1996, p. 107) makes a very similar claim to Searle's in rejecting EM: "Once we have explained all the physical structure in the vicinity of the brain, and we have explained how all the various brain functions are performed, there is a further sort of explanandum: consciousness itself." See also Chalmers (1997).

those subjective experiences” (Searle, 1998a, p. 386). Notice that this reply simply will not do. For Searle, again, with little argumentation claims that there will be subjective experiences still remaining after all the neurobiological details are provided by neurobiologists. He has provided no strong evidence or arguments, however, for thinking that anything will be “left over,” that subjective experiences do exist in addition to, or at the same time as, their neurobiological brethren interact with one another in a particular fashion. Moreover, Searle restates his earlier point that a word for MCS is our actual concern. However, as I noted above, this is not the issue at all (of course, we will employ our natural language(s) to talk about MCS, but the terms themselves may or may not correspond to our actual scientific understanding of MCS). The issue has to do with why one should think that MCS has an ontology that is not reducible to the interaction of parts that cause it to come “to exist.” As it stands, Searle’s claim that MCS has an ontological existence that is dependent upon, but not reducible to, brain stuff is not much more than a stipulation.<sup>24</sup> If we are to understand Searle’s non-reducibility claim about MCS as a rejoinder to both (1) the EM thesis and (2) my concern about ontology, then he has failed to provide an adequate reply to both (1) and (2) because he continues to assume that which first requires an explanation.

Still, it might be thought that Searle’s second point (the elimination of the appearance and reality distinction with regard to understanding MCS) is part of his justification for insisting that subjective experiences do have a distinct ontological status that eschews the kind of reduction associated with EM. According to Searle, part of the problem of understanding the ontology of MCS from a scientific perspective is that those within the scientific community work on a general assumption that must be abandoned in order to understand MCS. The assumption that Searle thinks should be abandoned is that an analysis of any phenomenon is not only distinct from those scientists who are performing the analysis, but there is a more fundamental explanation than what is observed or perceived. For example, there is an explanation of cold air that is more exact than the human perception of cold air. Science has shown that cold air is nothing more than particular molecular configurations.

Searle is quick to note, however, that this traditional subject-object division and appearance-reality distinction with regard to understanding MCS is an erroneous assumption that must be abandoned if progress in this area is to be possible. Searle’s justification for this view, I take it, is the third point he makes in the above quotation. Recall, he states, “If it seems to me that I am conscious then I am conscious.” A reconstruction of a possible argument about the ontology of MCS that Searle is suggesting here might look something like this.<sup>25</sup>

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<sup>24</sup> In his review of Searle (1998b), wherein Searle makes an analogy between digestion and consciousness, Blackburn says: “Digestion, as Searle admits is an objective, third person phenomenon. All Searle says here is that it is just a fact that some higher-order states of the brain have a special subjective, qualitative, inner ontology. But he does nothing to tell us how that can be a fact... So, I doubt if Searle’s solution to the mind-body problem is really a solution at all. He may wish to avoid labels like ‘dualism’ and ‘materialism’, but this is not the same as avoiding the problems for which they are labels.” (1999, p. 628)

<sup>25</sup> Searle does not think that this is an epistemic point he is making here. We could be wrong about the causal details of our conscious states, but we cannot be wrong, according to Searle, that we have such states—that such states

P1 If it seems to people that X is the case (ontologically speaking) concerning themselves, then X is the case (ontologically speaking) concerning themselves.

P2 It seems to people that they are conscious (ontologically speaking).

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C1 It follows that people are conscious (ontologically speaking).

Contrast the above argument with the following argument:

P1 If it seems to people that X is the case (ontologically speaking), then X is the case (ontologically speaking).

P2 It seems to people that the sun does, in fact, rise and fall (ontologically speaking).

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C1 It follows that the sun does, in fact, rise and fall (ontologically speaking).

In the first argument, the explanandum is taken to be true, according to Searle, as a result of the testimony provided by individuals about themselves. In the second example, I assume that Searle, like most individuals (if not all) of the scientific community, thinks that the explanandum is false despite the testimony given by individuals. According to Searle, the phenomenon for the second argument (i.e., the motion of the sun) is the kind of phenomenon in which it is appropriate to assume a subject-object distinction as well as an appearance-reality distinction. However, Searle thinks that the MCS phenomenon in the first argument cannot be understood as employing these distinctions. Notably, if we think of philosophy as (partly) a field that provides distinctions and unifications that will help make a topic clearly understood, then we can think of Searle as suggesting that a unification of (1) appearance and reality and (2) subject and object is necessary with regard to understanding MCS.

## **V. A Critical Reply to Searle**

Yet, this request for a change in methodology by those scientists who wish to explore MCS is fantastic! Think of what Searle is suggesting. Searle is asking our current “bench” scientists to abandon two elements of the scientific process that would virtually make the scientist a non-scientist. Without the subject-object and appearance-reality distinctions, confirmation (or falsification) of theories would be virtually impossible. For it is crucial that any scientist’s findings be replicable by other members in her area of research. Part of such a “double-check” system within the scientific community is to ensure that (1) the data are accurate, (2) the tests performed are the kinds of tests that should be performed on the particular phenomenon under consideration, and (3) the inferences made from both (1) and (2) are warranted. MacLennan quite nicely states this depiction of science:

[S]cience is a public enterprise; it attains knowledge that is independent of the individual investigator by limiting itself to public phenomena. Ultimately it is grounded in shared experiences, for example, when we both look at a thermometer and read the same

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exist. This view is sometimes called “The Thesis of Incorrigibility”. The idea is that it is necessarily the case that any belief I have about the nature of my MCS states is true.



temperature. Traditionally science has accomplished its ends by focusing on the more public, objective aspects of phenomena (e.g. temperature as measured by a thermometer), and by ignoring the more private, subjective aspects (how warm it feels to me). In other words, science has restricted itself to facts about which it is easy to reach agreement among a consensus of trained observers. (MacLennan, 1996, p. 409)<sup>26</sup>

Although MacLennan's suggestion that it is "easy" for science to reach agreement on certain facts is overstated, it is clear that the scientific undertaking is one that embraces the subject-object distinction. To the point, this double-check system requires that the phenomenon under consideration be accessible from a third-person perspective so as to ensure that the confirmation (or falsification) process is possible. In more traditional terms, there must be a phenomenon qua object that scientists qua subjects can test and independently confirm.

But how are scientists to employ the confirmation process with regard to Searle's view that ontologically subjective phenomena should be included as a category that is part of the fabric of our natural world? First, scientists cannot use neurobiology and neurochemistry for assistance in fully understanding MCS because these material elements fit within the subject-object and appearance-reality distinction assumptions. For example, neuroscientists qua subjects propose theories about what conclusions can be drawn from the results of the interaction of neurons qua objects throughout the brain. Then, their peers test these conclusions. The result is that either the theory is accepted, rejected, or accepted under certain assumptions and restrictions. Whatever information we can glean from neuroscience may help us to understand MCS, but such information could not fully explain MCS, as Searle has emphasized. A version of Searle's argument can be reconstructed as follows:

- P1 All subjective experiences are ontologically subjective experiences.
  - P2 All ontologically subjective experiences are the kind of phenomena that cannot be fully understood from a third-person perspective that assumes the distinctions of (1) subject-object and (2) appearance-reality.
  - P3 Any mode of inquiry that assumes distinctions (1) and (2) cannot hope fully to understand subjective experiences (MCS).
  - P4 Current scientific practices endorse a methodological approach to understanding all phenomena that assumes distinctions (1) and (2).
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<sup>26</sup> I am only providing MacLennan's account of science as it currently functions. MacLennan appears to be sympathetic with Searle to the extent that he thinks that science should extricate itself from some of its own restrictions. (See this article in its entirety.) Recent work on the relationship between mirror neurons (Corballis, 2009; Vilarroya and Argimon, 2007; Ramachandran, 2003; Schulkin, 2000; Panksepp, 1998b; Gallese and Goldman, 1998) and human consciousness should be included in these discussions.

C1 It follows that current scientific practice cannot hope to understand fully subjective experiences (MCS).

As it stands, the above argument not only makes it clear that current science cannot hope to understand the nature of MCS, but that any future brand of science that adheres to the subject-object and appearance-reality distinctions is forever doomed to failure in its pursuit of understanding MCS. So, as long as science continues to cling to distinctions (1) and (2), it will be of very little service in understanding the nature of MCS. Since Searle has provided (a) no rigorous argumentation to persuade scientists to abandon the noted distinctions (i.e., premise 2 in the above argument) and (b) no criteria for why certain phenomena admit of the subject-object and appearance-reality distinctions and certain other phenomena do not admit of these distinctions, one can imagine that current scientific practices and their concomitant assumptions concerning MCS will not change in the radical way that Searle has suggested they should.

Second, given that MCS is an ontologically subjective phenomenon, not only is it not possible to determine accurately what it is, a neuroscientist cannot open up a skull and analyze MCS; but, moreover, the individual who claims to be conscious cannot assess her own MCS because she will be using the very phenomenon to be analyzed as the tool of analysis. There is no independent tool to study MCS; that is, in order to study MCS, one must be conscious! If this is the case, then Searle is suggesting that MCS, as an ontologically subjective phenomenon, is determining that it is itself an entity that has an ontological status. How is this possible? As far as I can see, it is not at all clear how Searle expects the scientific community to provide epistemically objective claims about ontologically subjective phenomena.<sup>27</sup> As it stands, Searle's account of MCS is outside the scope of modern scientific practices (Warner, 1996). Any future scientific methodology should not be too quick to abandon distinctions (1) and (2) as part of its heuristic— despite Searle's suggestion.

Searle's fourth and last point is a reminder that he is not concerned about epistemic limitations to understanding various aspects of MCS, but that the ontology of conscious states is the issue at hand. Searle's point is that we could be wrong about the details of what it means to be conscious, but we cannot be wrong about the fact that we are conscious. Again, I fail to see how this fact about our phenomenal experience is a claim about the ontology of MCS. Indeed, Searle's assertion that "the existence of the appearance is the reality" is rather glib and in no way justifies the actual distinct ontological status of MCS.

This train of thought can be made more lucid with the following example. When a stick is submerged into a pool of water, the submerged portion of the stick appears bent or to have

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<sup>27</sup> Nagel (1974, pp. 444-445) suggests that to attempt to try to give such an account is a mistake. He says, "If the subjective character of experience is fully comprehensible only from one point of view, then any shift to greater objectivity—that is, less attachment to a specific viewpoint—does not take us nearer to the real nature of the phenomenon: it takes us farther away from it." Note, however, that Nagel (1998) seems to have backed off this stronger claim. I must admit that I am a bit baffled as to why he would make this move—but this is an analysis for another time.

changed direction in the water to those who view it. This aftereffect is produced as a result of the stick passing through different media, air and water, which have different densities. It is not the case that the stick is actually bent, but that the light waves that enter into the water change direction because of a change in speed of light waves caused by a change in density from air to water. What the observer is actually seeing is the bending of light rays and not the bending of the submerged portion of the stick (this phenomenon is known as optical refraction). The hypothesis that the stick is bent is replaced with a more sophisticated science about the nature of light. This scientific discovery has been confirmed by many different scientists using a plethora of tests and is thought to be correct with a high degree of probability. Notice that the confirmation of the theory of optical refraction is a reasonable theory to the extent that it explains a series of observed phenomena from which a general explanation is constructed.

The following question is probably no surprise. Cannot the appearance of MCS be completely explained by a sophisticated enough neuroscience in much the same way that the appearance of the "bent" stick has been completely explained by a sophisticated enough physics? As noted earlier, Searle could insist that MCS is an object that is not distinct from the subject, the elimination of MCS is not possible like the elimination of the belief associated with the "bent" stick (i.e., the "bent" stick is an object distinct from a perceiving subject). Still, it could be suggested to Searle that one is willing to grant the appearance of distinct ontological mental states to those who contend that they exist in much the same way that one is willing to grant the appearance of the "bent" stick to those who claim they perceive it. Restated, it should be granted that even after an explanation of refraction is given to those who perceive the "bent" stick, it is the bent stick that they still perceive: The bent stick does not suddenly become straight as a result of the explanation of refraction. In much the same way, it should be granted that even after a complete neuroscientific explanation of consciousness is provided to those who perceive that consciousness exists, it is consciousness that they continue to perceive: Consciousness does not vanish the moment a thorough neurobiological explanation is proffered. We must submit, however, that it is only the appearance that we will agree to and not the actual existence (ontologically speaking) of such phenomena.

Searle's reply to my suggestion that we keep distinct appearance and reality in the "bent" stick example, as well as in mental phenomena, would be to deny the move on the ground that subjective mental properties (e.g., intentions and qualia) simply do not admit of the appearance-reality distinction. Searle could conclude that the appearance of mental phenomena justifies them as being (ontologically) real. It is unclear, however, exactly what Searle is relying on when he replies in this fashion. It seems that Searle is suggesting that humans possess some sort of (biological?) faculty that is able to determine that (1) certain brain events produce certain emergent properties and that (2) these properties have an ontological status distinct from the brain processes that produce them. (3) This faculty that renders such ontological "judgments" is an infallible faculty: infallible to the extent that it cannot be wrong about such ontological "judgments," but fallible with regard to "judgments" about the details regarding how such mental phenomena come into existence.

Of course, what one would like to know is exactly what this faculty is. Churchland suggests that Searle is referring to the faculty of introspection. If this is the correct way to understand Searle (I am not sure that it is), Churchland offers the following reply:

After all, and whatever else it might be, introspection *is* an epistemic modality, or perhaps a family of them. And while it may have its own quirks and distinguishing profile, it is entirely unclear whether it, alone among all of our epistemic modalities, constitutes a window onto a unique domain of nonphysical properties. None of our other epistemic modalities has any such distinction: they all access some aspect or other of the purely physical world. Why should introspection be any different? (Churchland, 1996, p. 221)

There are at least three points to clarify with regard to Churchland's interpretation. First, when Churchland discusses introspection, he does not provide any account of Searle's that suggests that Searle, in fact, thinks that introspection is doing the work that Churchland thinks it is doing for Searle. Second, Churchland claims that this faculty of introspection "constitutes a window onto a unique domain of nonphysical properties." It is not clear, however, that Searle does think that MCS is a nonphysical property. He states that "Conscious states are caused by neuronal processes, they are realized in neuronal systems and they are intrinsically inner, subjective states of awareness or sentience." (Searle, 1998a, p. 387) This claim, however, says nothing about the ontological status of MCS. Third, if introspection is the faculty that is doing the work for Searle, then it is something about (a) "whatever else it might be" and (b) "its own quirks and distinguishing profile" that Searle thinks is doing the work. Recall, Searle does not think that the ontological status of MCS is an issue about knowledge. Churchland has erroneously tried to use the epistemic aspect of introspection as the means by which it (i.e., introspection) is able to make ontological judgments.<sup>28</sup> Clearly, Searle could resist this move and suggest that it is the details of (a) and (b) that account for the ability of introspection to make ontological judgments about mental phenomena. Of course, this move would only push the problem back a step further. An additional explanation of the nature of (a) and (b) of introspection would be required.

So, either Searle must offer an account of the nature of introspection in order to justify its ability to make ontological judgments about MCS, or he needs to provide some other account for thinking that MCS has a distinct ontological status of its own. Unfortunately, as I keep reiterating, Searle has provided no persuasive argument in defense of either the former or the latter position.<sup>29</sup>

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<sup>28</sup> In fact, in a reply to McGinn, Searle (1994, p. 105) specifically rejects the use of introspection as a means of understanding the nature of MCS because such an act would require a distinction between the act of inspecting and the object being inspected, which he completely rejects (at least with respect to understanding MCS). Of course, Churchland could not have been aware of this fact because his paper was published before Searle's book. More recently, Michael Tye (1999) has argued in favor of the idea that we have direct immediate access to phenomenal states through introspection.

<sup>29</sup> Churchland (1996, p. 228) draws the same conclusion when he states that "even if conscious phenomena are ontologically special in some way...there is no reason to think that the arguments of Searle, Jackson, and Chalmers do anything to illustrate or establish it."

## **VI. Conclusion**

Let me conclude by first making clear that I am not here embracing the EM thesis. My purpose in this essay is to elucidate Searle's account of how MCS can be studied scientifically. My conclusion here is that if scientists are to embrace Searle's "emergent1" as the correct account of MCS, then they will have to do so at the expense of not only rejecting (1) the subject/object distinction and (2) the appearance/reality distinction that are an integral part of their methodology, but that they must also embrace (3) an understanding of matter that includes MCS as one of its forms of being.

Also, I have further suggested that Searle has not provided persuasive enough arguments for those in the scientific community to abandon their current methodology of studying MCS. Moreover, I have indicated that even if the scientific community were to embrace much of what Searle suggests, it would still have difficulty accounting for the nature of MCS. Of course, a radical shift in how science is conducted may very well vindicate Searle's account of MCS. What Searle is asking for, in the words of Kuhn (1970, pp. 180-181), is a revolution in which "a special sort of change involving a certain sort of reconstruction of group commitments" comes to fruition within the community of those scientists studying MCS. Certainly, the ebb and flow of the history of scientific methodology reveals such a possibility. Let us be clear, however, that Searle is asking the scientific community to embark on a mode of inquiry that would be revolutionary in the truest sense of Kuhn's concept of revolution.

### **Acknowledgements**

Earlier versions of this paper were presented at Marquette University, Siena College, Bowling Green State University, Illinois State University, and DVK University (Bangalore, India). I thank all the participants of these conferences for their feedback. Moreover, I would like to thank Michael Bradie, Ben Dixon, Paul Gomberg, Carrie-Ann Biondi, Kalevi Lehto, Fred D. Miller, Jaak Panksepp, Janice Dowell, JR Shrader, and Sara Worley for the lively discussions and critical feedback from which this paper emerged.

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