Reconciling Eros and Neuroscience: 

Maintaining Meaningful Expressions of 

Romantic Love in a Material World

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Abstract

Many people currently working in the sciences of the mind believe terms such as “love” will soon be rendered philosophically obsolete. This belief results from a common assumption that such terms are irreconcilable with the naturalistic worldview that most modern scientists might require. Some philosophers reject the meaning of the terms, claiming that as science progresses words like ‘love’ and ‘happiness’ will be replaced completely by language that is more descriptive of the material phenomena taking place. This paper attempts to defend these meaningful concepts in philosophy of mind without appealing to concepts a materialist could not accept.

Introduction

Philosophy engages the meaning of the word “love” in a myriad of complex discourses ranging from ancient musings on happiness, to modern work in the philosophy of mind. The eliminative and reductive forms of materialism threaten to reduce the importance of our everyday language and devalue the meaning we attach to words like “love,” in the name of scientific progress. Faced with this threat, some philosophers, such as Owen Flanagan, have attempted to defend meaningful words and concepts important to the contemporary philosopher, while simultaneously promoting widespread acceptance of materialism. While I believe that the available work is useful, I think

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more needs to be said about the functional role of words like “love” in the script of progressing neuroscience, and further the important implications this yields for our current mode of practical reasoning.

I will begin by addressing the controversial claim of eliminativism in its most radical form. The claim is that much of the content of our everyday language will soon be eliminated and displaced by the emerging scientific understandings coming from our advancements in neuroscience. I believe I will be able to show that the proponents of the eliminativist perspective need to reconsider some of the underlying assumptions driving their arguments. I will then turn to reductionism, which I understand to be the view that our ordinary terms such as “love” and “consciousness” will be subject to intertheoretic reduction, “where a new and very powerful theory turns out to entail a set of propositions and principles that mirror perfectly (or almost perfectly) the propositions and principles of some older theory or conceptual framework.”¹ The reductionist perspective can be considered as a revisionary response to some of the more popular criticisms made against eliminativism. Though reductionism is a more distinct position than eliminativism, I will still argue that there is not enough evidence given by current scientific studies to warrant the promises of a reductive movement, and the implications from conceptual history and available neuroscientific research are not as damning as the reductionist project. I will conclude by offering an alternative framework to use when approaching progress made by science, wherein use of our everyday language fits comfortably with our understanding of materialism, i.e. the idea that everything, including mental phenomena, is composed of material, and as a result of physical interactions.

Materialism carries a lot of weight among modern scientists, as there is fear that any alternative requires dualism. Assuming the arguments against dualism to be strong, it is useful to keep this theory in mind when trying to understand the perspective of the following reductionist proponents (though attention should be paid to the false dichotomy: either reductionism or dualism).

The account I am trying to provide is also a rejection of dualism. The problem is conceiving of love in a way that fits in with the
materialist world view that contemporary philosophy seems to call for. In the arguments I make for the role of *eros*, I must also account for the conception of any idea I utilize, including that of consciousness, within a materialistic framework. In order to provide a satisfactory reconciliation of all of these ideas with the materialist restrictions, I must thus reconsider the following questions: Does love require a dualistic worldview? Does consciousness exist in the material world? And, how do we empirically account for the existence of love?

**Eliminativism**

In the philosophy of mind eliminativism is the position that conscious phenomena such as beliefs, desires, sensations, perceptions, will be proven not to exist as neuroscientific knowledge advances. Folk psychology should and will accordingly be abandoned in favor of neuroscience. This claim obviously yields deeply troublesome implications for our ordinary conception of love and other emotions. If eliminativism is correct, we should expect love not to exist as well. In this chapter I will examine the arguments for eliminativism and argue that none of them succeeds.

**Churchland’s Arguments**

Paul Churchland has manufactured some of the most prominent eliminativist arguments. Churchland (1984) claims that the resistance to eliminative sentiments is merely an attachment to a flawed folk psychology. He defines eliminative materialism as “the thesis that our commonsense conception of psychological phenomena constitutes a radically false theory . . . so fundamentally defective that [it] will eventually be displaced, rather than smoothly reduced, by completed neuroscience.”

His arguments embody the following ideas: Mental states known as emotions fail to cleanly correspond with complex neurological brain states. In our attempts to communicate our mental states, we employ an inefficient and ultimately problematic language. Once we have a universal understanding of the physical events that take place in accordance with the mental phenomena, we will much
more effectively communicate our mental states in a descriptive neuroscience-based language. It is also thought that this point in progress will alleviate some of the problems of “other minds” and some of the descriptive misunderstandings rooted in folk psychology, such as “how memory works, or how we manage to retrieve relevant bits of information instantly from the awesome mass we have stored.”

The immediate appeal of such ideas would make up for the failure of our everyday forms of explanation to adequately account for mental illness, differences in intelligence, sensorimotor coordination, how the retinal image allows for perception of all three dimensions, and certain aspects of memory.

The two foundational assumptions that emerge from the eliminative arguments can be summarized as such: first, the belief that the type of descriptive warrant attributed to _eros_ is less valuable than the type attributed to scientific description; and accordingly, the subsequent belief that the former descriptive warrant justifies the elimination of our current expressions, in terms of “folk psychology,” for a new set, one defined solely in scientific terms. Churchland puts forth three claims to this effect:

1. Our early folk theories have traditionally, throughout conceptual history, been displaced entirely by more sophisticated theories; thus folk psychology will inevitably follow in this tradition of displacement.

2. The widespread explanatory, predictive, and manipulative failures of folk psychology will fold from the explanatory poverty and failure.

3. The _a priori_ probability of eliminative materialism is substantially higher than that of either identity theory or functionalism.

Charles Siewert (1998) adequately captures my initial reaction to these claims when he writes: “everyday mind talk and brain science are supposed to be incompatible; but to this we must ask: ‘Why?’” Churchland gives two reasons at the beginning of his work: First, it seems very unlikely that the arrival of an adequate materialist theory would be able to directly correlate and align with our concepts of folk
psychology with our concepts of theoretical neuroscience. He goes on to argue further that “because our common-sense psychological framework is a false and radically misleading conception of the causes of human behavior . . . it is an outright misinterpretation of our internal states.” Both of these claims depend on the validity of the three outlined arguments, to which I will now turn my attention.

**Argument #1: Warrant from Conceptual History**

Churchland (1988) begins his first argument for eliminativism by calling attention to the claim that, “as the identity theorist can point to historical cases of successful inter-theoretic reduction, so the eliminative materialist can point to historical cases of the outright elimination of the ontology of an older theory in favor of the ontology of a new and superior theory.” Consider his example of how “witches” were eliminated from our ontology when the theory of psychosis was introduced. Psychosis is a relatively common affliction among humans and “in earlier centuries its victims were standardly seen as cases of demonic possession, as instances of Satan’s spirit itself, glaring malevolently out at us from behind the victims’ eyes.” Some weaker examples he gives, like the belief in the “noble soul,” are more easily eliminated because they are non-observable phenomena, but witches were at one point empirically accounted for, and yet the conclusion was made that “the concept of a witch is an element in a conceptual framework that misrepresents so badly the phenomena to which it was standardly applied that literal application of the notion should be permanently withdrawn.”

But how well do the implications of this example extend to the existence of love? Churchland grants that, since we are working within a materialistic framework, “only empirical research can tell us where on [the reductive spectrum] our own case will fall.” In the witch example, the empirical observation being described by the word “witch” was that of individuals “engaged in incoherent, paranoid, or even murderous behavior.” The word “witch” thus carried with it many meanings: an individual with the ability to do magic, an individual with power from the devil, an individual who exhibited incoherent, murderous, or
paranoid behavior (hereafter referred to as IMP-behavior). We have not eliminated any of these meanings, as far as I can tell, from our use of the word “witch” when it is still used in reference to supernatural fantasy; instead we have eliminated the object to which those meanings refer. Thus, the elimination, it seems, took place in that our attributions of demonic possession and the quality of being-a-witch, were eliminated from our empirical understanding of accounts of IMP-behavior; when Churchland wants to eliminate the terms in our mental language, he is denying that they refer to anything real. The elimination that took place in this example can thus be illustrated as in Figure 1 (which will help when considering the future possibility of extending the example to mental terms).

The “witch understanding” – that IMP-behavior was a characteristic of a witch – was easily displaced by the scientific understanding because it didn’t seem to have any empirically recognizable meaning or understanding that functionally correlated with the event being described. Upon first consideration, it seems unlikely that this will extend to something as complex as the observations made about love. To examine whether or not the model given by Figure 1 will extend to the contents of folk psychology I will proceed to identify the empirical observation that folk psychology is attempting to describe, tease out the available understandings, and analyze the eliminative or reductive warrant of current scientific advancements. In order to adequately accomplish these three tasks, I must first critically address

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**Figure 1.** The left side of the diagram lists an empirical observation [EO] and the various understandings available [Un] prior to some scientific advancement [SA]. The right-hand side lists the understandings after said SA. The numbers rank possible importance of the understanding.
Churchland’s second argument that claims that folk psychology puts forth understandings that suffer from just such explanatory poverty as that of the witch understanding. I will thus continue by showing that he mischaracterizes our ability to currently account for conscious mental events.

**Argument #2: The Explanatory Poverty of Folk Psychology**

The first major problem with the account Churchland (1981) gives of folk psychology is his unfair treatment of its empirical content; he frames the argument against reduction alongside an argument for dualism, characterizing the non-eliminativist as akin to the dualist who “expects that [folk psychology] will prove irreducible to completed neuroscience, by dint of being a nonredundant description of an autonomous, nonphysical domain of natural phenomena.”

Because we are trying to give empirical accounts of our mental states, we do not want to require a dualistic image of the mind where there is anything immaterial being described (and this image is not very popular among empirical scientists). The false dichotomy given between reductionism and dualism is exposed by many, including Owen Flanagan. It is thus useful to consider his method for evaluating meaningful concepts in the material world when arguing against what is widely accepted by most philosophers within the philosophy of mind as a mischaracterization of folk psychology.

**Flanagan’s Method**

In his controversial attempt to reserve the ideal of ‘meaningful happiness,’ Owen Flanagan (2007) established a methodical construct for evaluating any meaningful term within the confines of materialism. Flanagan begins with the following question: “Is there anything substantive that can be said about how best to find meaning and to live purposefully, to achieve *eudaimonia*, given we are fully natural beings?”

Flanagan is specifically concerned with the question of ultimate happiness and fulfillment, employing the term *eudaimonia*. The philosophical psychology of eudaimonics is the all-encompassing attempt at unifying the other sciences to explore fulfillment and
flourishing. The idea is that having a well-developed and progressive eudaimonic practice will lead to knowledge of how to guide practical reason, and expose how we ought to live. Wilfred Sellars claims “the aim of philosophy . . . is to understand how things in the broadest possible sense of the term hang together . . . to know one’s way around . . . it is therefore ‘the eye on the whole.’”13 Eudaimonics would reach this goal for philosophical enterprises as it tries to reconcile all types of science with the naturalist disposition. It follows from the existence of the social sciences that everything may be understood scientifically; Flanagan offers a proof of this possibility:

(1) Humans are natural creatures who live in a natural world.

(2) According to the neo-Darwinian consensus, humans are animals.

(3) Human practices are natural phenomena.

(4) Art, science, ethics, religion, and politics are human practices.

(5) The natural sciences and the human sciences can, in principle, describe and explain human nature and human practices.

(6) Therefore, sciences can explain, in principle, the nature and the function of art, science, ethics, religion, and politics.14

There is room here to recognize some confusing assumptions that might be made. First, by understanding the human practices one might need to trace their causal antecedents and consequences. As the human sciences are included in “the sciences” it should be recognized that there are other evaluative measures. It does not require that the intentional objects, those things under evaluation (art, ethics, etc.) be reduced to “mere things.” This assumption would turn the world into a mere collection of scientific objects, a reductionist movement. The mistake lies in the lack of a distinction between two claims: “the claim that science can explain everything we think, say, and do – that it can provide a causal account of being; [and] the claim that everything can be explained scientifically.”15 The latter claim provides an account reduced to a collection of scientific idioms; it is here that the philosopher’s vocation requires us to hold onto meaning and not fall
victim to this reductionism, if possible, in order to live meaningfully.

Flanagan examines the scientific image in terms of common psychology, including the proper and improper conclusions that follow from this image; there are three important confusions to note surrounding the scientific image: 1) the view of scientism; 2) the view of the individual and its natural characteristics; and, 3) the view of consciousness and its normative features. The first and third confusions are the most important confusions for our examination, so I will skip the second as it is more useful in Flanagan’s conception of freedom and causality, and not as useful as the view of consciousness. Carefully considered, “the scientific image . . . need not be reductive, eliminativist, or disenchanting.”

Scientism

Patricia Churchland (2011) evades the overreaching claims of scientism – the claim that science can and will explain everything, and do everything – by qualifying the belief that the scientific approach to understanding morality does not threaten the arts or humanities; yet, she still claims that, “it is true that philosophical claims about the nature of things, such as moral intuition, are vulnerable. Here, philosophy and science are working the same ground and evidence should trump armchair reflection.” Though the second part of her claim alludes to the retention of some reductive sentiments, the first part makes the concession of the existence of spaces of meaning beyond scientific expression. In other words, there are meaningful expressions that exist beyond understanding in scientific idiom. Considering accounts of art, music, and other imaginative enterprises helps illuminate why scientism fails. The nature and function of music, for example, can be causally accounted for, its physical manifestations can be subject to physics and mathematic examination, its lyrics seen in terms of cause traced by the artists functionality; the explanation of these elements do not identify “the production itself as something that can be demonstrated scientifically.” The meaning of the love song is understood and it does use words, but the idiom is not a scientific one. The song “Brown Eyed Girl” may cause you to understand the
love felt for the girl, but it does not give causal support for the feeling. Causal statements about the physiology of perception of the song abound, but these statements cannot approach the meaning of the song – that is what requires creativity over rationality, linguistic tricks over propositions, and transcendent understanding over scientific explication. The finding is that not everything worth expressing is scientifically expressible, not that some expressions are beyond scientific understanding. The materialist must allow other meaningful expressions outside of science, especially those that identify their meaning with their physical correlate. I will now examine conscious experiences and attribution of mental states in this way, now free of the assumption of dualistic requirements.

Consciousness

Charles Siewert (1998) has done influential work providing for the existence of consciousness in the face of the eliminativist proposition. Siewert argues that for folk psychology, in its attempts to explain human behavior, to be proven radically false on empirical grounds, the eliminativists suggest the idea that “the explanations we offer in terms of attitudes and experience are to be seen not only as constituting a theory, but as constituting a theory that is inferior to that which neuroscience does or will provide” (50). Further, because the inferiority has to be so strong as to warrant the rejection of our everyday idiom, the eliminativist must describe the behavior that is to be explained without using any of the terms to be eliminated. The requirements of the eliminativist perspective when considered in this way seem very difficult to meet, thus Siewert goes on to ask, “isn’t it clear that our warrant for attributions of attitudes and experiences depends on how well these explain things? And isn’t it clear that what these explain, if anything, is our observable behavior?”

Even Churchland (1981) concedes that “folk psychology does enjoy a substantial amount of explanatory and predictive success, and what better grounds than this for confidence in the integrity of its categories?” When we attribute typical attitudes like embarrassment or surprise to our experience, the descriptive force of the attributions
seems quite powerful. If we attribute an attitude of confusion to action such as Sandra raising her hand we might be able to understand the motivation of asking a question. If, however, upon calling on her it turned out that her arm was having an involuntary spasm, it is not likely that such false attribution would warrant my rejection of all of my attributions of confusion to all of the cases where the act of raising one’s hand successfully communicated confusion and the desire to ask a question. Also, through this example, we can notice that there is often more than one correct explanation of some episode of behavior. Sandra raising her hand could be described: scientifically using language describing the set of muscles employed; folk psychologically using my attribution of confusion to her action; sociologically in terms of the cultural expression that the act signifies. The significant conclusion that Siewert (1998) would draw out of this example is the realization that, “mere movements’ can also be explained in the idiom of attitude and experience . . . our warrant for attributions of attitude and experience to others is not to be assessed entirely on the basis that it best explains what is conceived of in a thoroughly dementalized fashion.”

Churchland (1988) responds to the argument that eliminative materialism is false “because one’s introspection reveals directly the existence of pains, beliefs, desires, fears, and so forth,” by insisting that in both the case of the witch and that of familiar mental states, “precisely what is challenged is the integrity of the background conceptual frameworks in which the observation judgments are expressed.” Given the considerations made about the act of raising one’s hand, we can illustrate, in Figure 2 (next page), the possibility of eliminating our understanding of our attribution of confusion, using the same model as Figure 1.

It is quite clear that, in many ways, the witch example does not extend to our everyday attribution of attitudes. The [SA] of muscle recognition might not warrant as much worry as the [SA] surrounding the much more confused case of eros. Thus, I will now turn to my understanding of these arguments, specifically when considered in terms of romantic love, in order to: 1) identify the empirical observation that eros is attempting to describe; 2) tease out the
available understandings; and 3) analyze the eliminative or reductive warrant of current scientific advancements.

**Romantic Love and the Witch Model**

The empirical observation (EO) of *eros* takes many forms. In order to work *eros* into the model I have been using for the evaluation of the prospect of elimination, I will thus explore a wide range of possible EO, including the observations of: (1) John kissing Jane; (2) my first-person feeling of love toward individual S (attribution of attitude “love” to S); and (3) the businessman-who-loves-his-wife and is not cheating. In these explorations, I will tease out the various ways to describe and understand each observation, including the available neuroscientific advancements.

**EO (1): “John Kisses Jane”**

Though there are currently very few studies examining neurological activity during sex and other acts associated with romantic love, there is a lot of interesting, and relevant, information available about kissing. Generally, the findings of these studies are discussed in terms of
evolutionary function, behavioral influence, or gender relations. One article that looks at these implications with specific regard to romantic love is “Romantic Love: An fMRI Study of a Neural Mechanism for Mate Choice” by Helen Fisher, Arthur Aron, and Lucy Brown (2005). The findings cited in this article can be used to frame a myriad of philosophical discussions concerning eros specifically:

The range and variation of motivations and emotions associated with human romantic love are undoubtedly produced by many neural systems, acting in parallel and dynamic combinations. Nevertheless, several results support our hypotheses . . . that romantic love is primarily a neural system associated with motivation to acquire a reward, rather than a specific emotion; that this brain system is derived from mammalian precursors; and that it evolved as a mechanism to enable individuals to respond to sexually selected courtship traits and motivate individuals to make mate choice.23

With such advanced research methods, it will be easy to see how advances in our scientific understanding are still not threatening to our everyday language. If the eliminativist worry is valid, then why are we still using the word love within the very scientific studies that are supposed to provide its replacement?

The evolutionary understanding of kissing makes for an excellent point of departure. The biological function of mate selection required a system by which the organism could evaluate potential mates. The lips, as depicted on the sensory homunculus, are one of the areas of the body most densely with sensory receptors. The theory stands that kissing “conveys subconscious information about the genetic compatibility of a prospective mate [which is] consistent with the idea that kissing evolved as a courtship strategy.”24 Whatever the reason, the correlation between kissing and romantic love is taken to be evident, and the scientific understanding of how “romantic love” is evolutionarily functional is observed accordingly. In later sections, I will provide a more thorough account of the development of the surrounding evolutionary theory; but for now, the given summary provides enough information to consider the foundations for the belief that our scientific understanding of the events and actions correlated with erotic acts is continuously progressing.
It then seems intuitive that continuous progress yields inevitable understanding of all of the scientific descriptive correlates. These scientific descriptions are considered more accurate/valuable than those we currently use in our everyday talk of “love,” they will progress past our folk conceptual understandings, requiring us to displace our use of “love,” with the descriptive content defined in the findings of our new studies, i.e. the measured chemical reactions in the subcortical reward regions. But the meaning here does not seem to be reduced at all; instead, we just see an expansion of the scientific understanding. The possibility of elimination seems even more distant as Chip Walter (2008) claims that even the current findings suggest that “the kiss continues to resist complete scientific discussion [as] close scrutiny of couples has illuminated new complexities woven throughout this simplest and most natural of acts.”

Perhaps our current language is the best possible way to currently consider the studies because it is able to capture the complexities otherwise inaccessible to a purely scientific description.

In her most recent work, Braintrust, Patricia Churchland (2011) also discusses the importance of love in mammalian evolution. She attempts to provide an account of morality that originates in the biology of the brain. The ability to tether ideas about “our nature” to something concrete in the world is realized through neuroscience; Churchland claims that, “Aristotle, Hume, and Darwin were right: we are social by nature. But what does that actually mean in terms of our brains and our genes? To make progress beyond the broad hunches about our nature, we need something solid to attach the claim to.”

What neuroscience currently tells us about eros can be considered in terms of what neuroscience tells us about the evolution of value, morality, and social behavior. The previously cited article on kissing by Chip Walter (2008) revealed that “kissing unleashes a cocktail of chemicals that govern human stress, motivation, social bonding, and sexual stimulation . . . [and] one hormone, oxytocin, is directly involved in social bonding.” Oxytocin (OXT) is the most notable chemical associated with acts of erotic nature and attribution; OXT has the most notable appearance in social evolutions in the mammalian brain; OXT is also found in all vertebrates, but Churchland (2011)
notes that “the evolution of the mammalian brain adapted oxytocin to new jobs in caring for offspring and eventually for wider forms of sociability.”28 The examination of eros is thus interwoven into the expression of social values. The prominent standing hypothesis posits the neurochemistry of attachment and bonding in mammals as the most important explanatory element. But Churchland goes on to ask the important question: how can neurons value something? Value statements seem to engage in one of the many spaces of meaning beyond simple scientific expression.

The complex interplay of OXT in attachment is seen to extend beyond the tight circle of offspring when it is put in terms of mate attachment. In the 1970s, Sue Carter, a noted neuroendocrinologist, conducted some useful studies with prairie voles and montane voles. These studies revealed that the prairie voles have much greater OXT receptor densities than the montane voles in the ventral pallidum and the nucleus accumbens regions; both of these subcortical regions are identified with the reward-and-punishment system. The prairie voles also demonstrated much stronger social behavior. They even displayed clear mate attachment and bonding after the first mating. Further, when experimenters blocked the OXT receptors, the treated voles did not bond after the first mating.29

These findings all indicate optimistic implications for the future strength of scientific description; however, the important question is whether these findings extend to human mate attachment, which appears to be more complex. Churchland cites anthropologists George Murdock and Suzanne Wilson, claiming that, despite apparent commonality of strong mating attachments, the flexibility of human mating arrangements can be seen in that “83% of societies allow polygynous patterns of marriage.”30 The recognition of patterns in the relation between the emergence of monogamy and non-biological events like the spread of agriculture in Eurasia, leads me to question the warrant of our current science, relative to the warrant of cultural memes or more general society-dependent moral practices.

This outline of the neurobiological explanation for the nature of our moral intuitions provides the means to understand the vast importance of expressions like the kiss, which evolved in such
complex ways. Yet through the use of lay words like “trust” and “love” we can understand and discuss even the most complex evolutionary significance. The emphasis of the role for evolutionary understanding, along with the advancements made in our understanding of the material physiological response that takes place during a kiss, yields the illustration in Figure 3 of the possible reduction of the observation of John kissing Jane.

**EO (2): My First-person “Feeling of Love” Toward Individual S**

I will now consider the possibility of the importance of maintaining all of my many understandings of my first-person attribution of the “feeling of love,” by exposing the possibility for failure in multiple spaces of meaning. If during the first hormonal stages of puberty I believe I feel romantic love toward a female classmate, who does not warrant such strong attribution, I might come to realize upon later reflection that this was a false attribution. It would seem a scientific understanding, more adequately describing the causes and chemicals
that created such a sensation, would have been more valuable, as it was definitively more accurate (this example captures the same explanatory failure as that concerned with understanding mental illness).

I am, however, later able to differentiate between my “artificial” hormonal experience (artificial in that it was caused by hormone imbalance, rather than the perceived beloved S), and a more “authentic” experience of the feeling of love (authentic in that it directly resulted as a response to the perceived beloved S). If we assume that the physiological response elicited in both the authentic and the inauthentic experiences would have been the same chemically, our scientific understanding might not be able to differentiate the significance; whereas, the understanding of the importance of the causality, will be meaningful for the understanding in the emotional space of meaning.

This example demonstrates the expanding importance of the meaning that we attribute to various mechanisms involving OXT, as the purely scientific understanding shows the possibility of confusing sexual love, with familial love, with platonic love, and so forth with most social bonding experiences. The illustration of this example in Figure 4 marks a shift in the authentic/inauthentic understanding, alongside the [SA].

EO (3): The Businessman Who Loves His Wife and Is Not Cheating

Consider the final example of a business man who is in Tokyo for a business trip for a month. Over the course of that month all of the physical neural events he experiences could be mapped out. On the last
day if you asked him if he loved his wife back home it seems obvious that just because the records indicate that he was not experiencing any of the neurological correlates associated with “love” at any point during the business trip it does not mean that at any point he did not, in fact, still love his wife. This example of the failure of the possibility of mapping propositional attitudes leads up to the clear distinction that needs to be made between mental states and brain states, as mental states have a specific space-of-meaning that is important for attributing attitudes that wouldn’t show up in chemical history.

Continuing this example, imagine the businessman encounters a woman whom causes all of the physiologically responses that would indicate sexual attraction and suggest mating behavior to follow. The physical understanding of the brain events does not adequately account for the man’s love for his wife, which would, assuming he has some level of self-control, better predict his refusal to cheat with the woman.

Argument #3: Possible Trouble with Reduction

Now that I have given many of the arguments against eliminativism the final argument Churchland (1988) makes is easily dealt with. It is also helpful to discuss this argument immediately before I turn my focus to the prospect of reductionism, as the final claim concerning the a priori warrant of the eliminative perspective is set up against the warrant of functionalism and identity theory, which comes from reductionism. Churchland, in this vein, claims that “there are vastly many more ways of being an explanatorily successful neuroscience while not mirroring the structure of folk psychology.” 31 This claim might be a reflection of the criticism of eliminativism, that he acknowledges the existence of, which claims that the major premise of eliminativism is only meaningful if it is the expression of a belief with an intention to communicate understanding, thus rendering its own claim incoherent if it succeeds. Churchland does not find the argument very productive.

A better criticism that Churchland also acknowledges exists within his work claims that eliminative materialism “is making mountains
out of molehills. It exaggerates the defects of folk psychology and underplays its real successes... but the large-scale elimination forecast by the eliminative materialist is just an alarmist worry or a romantic enthusiasm.”32 Though it might not yet be apparent why we should not remain open to the possibility of reductionism, it has been my aim in this section to make it at least intelligible that our collective conceptual destiny is nowhere near the revolutionary end of the spectrum.

**Reductionism**

Paul Churchland (1988) claims that the central idea of reductive materialism is “simplicity itself: Mental states are physical states of the brain. That is, each type of mental state or process is numerically identical with (is one and the very same thing as) some type of physical state or process within the brain or central nervous system.”33 The reductive promise of neuroscience is thought by some to be more warranted than the harsh eliminative promise. Paul and Patricia Churchland have even claimed that any characterization of their beliefs as ‘harsh eliminativism’ is misleading:

[We] have no ideological stake in the revision being massive or minor, though our expectations lean toward the former... What we do believe is that our current framework is not sacred, that it is neither manifestly nor divinely given, and that ‘obviousness’ is a familiarity phenomenon rather than a measure of metaphysical truth.34

Regardless of whether we call their ideas “harsh eliminativism” or “revisionary materialism,” as they would prefer, the unexamined assumptions at play remain the same. Though I would be remiss if I did not stop to make this clarification, I need to consider the radical cases of eliminativism and reductionism as some, like Paul Churchland (1984), might think they free themselves from criticism through qualifying their theory of reduction as “a possibility,” that merely considers the intelligibility of the idea “that our collective conceptual destiny lies substantially toward the revolutionary end of the spectrum.”35

Churchland points to four arguments for identity theory. I will
argue that there is something wrong with the characterization of the introspection and its propositional content that is offered in support of these arguments. This is not meant to reject materialism, as Churchland posits as his worry, but merely to expose that mental states are meaningful in such a way that makes it “ridiculous to expect a reduction from the behavioral level [and I will argue the conscious level] directly to the neuronal level.”

Four Arguments for Reductionism

The first argument reasons that the purely physical origins of each individual human (referring to the genetically programmed monocellular organization of molecules from which each person develops) develop within a purely physical system, whose behavior arises from its internal operations and its interactions with the physical world, and thus “those behavior-controlling internal operations, are precisely what the neurosciences are about.” While neuroscience might offer useful information about the internal observations it has been shown in our previous discussion of scientism that materialism does not seem to warrant elimination alone.

The second argument given is similar to our earlier discussion of conceptual history, claiming that scientific explanation has been shown to be superior to other spaces of meaning previously throughout conceptual history. Again, this argument alone does not seem to warrant reductionism as our folk psychology “does enjoy a substantial amount of explanatory and predictive success. What better grounds than this for confidence in the integrity of its categories?”

The third argument draws justification for reduction from the neural dependence of all known mental phenomena. We certainly could not have any mental states without any brain. The last argument alludes to the “growing success of the neurosciences in unraveling the nervous systems of many creatures and in explaining their behavioral capacities and deficits in terms of structures discovered.” But this does not warrant either what I have called scientism or what many philosophers call “category errors.” I will turn to my argument of the meaningful property given to mental states that is not possessed by
brain states. This property violates Leibniz’ Law which states “that two items are numerically identical just in case any property had by either one of them is also had by the other.”

Argument Against Reductionism

Introspection is one of the ways to think about mental states and properties that appear starkly different from any neurophysiological states or properties. The reductionist posits that the four arguments above warrant the claim that “in discriminating red from blue, sweet from sour . . . our external senses are actually discriminating between subtle differences in intricate [neurophysiological] properties.” But through the example of the businessman-who-loves-his-wife, I have shown that introspection might reveal and explain meaningful behavior in some instances where neuronal understanding fails. Thus, in some cases of predicting behavior, or understanding meaning of some behavior introspection seems to be a more useful tool than pure scientific understanding. Further, given Leibniz’s Law of numerical identity, the following proof can be made:

(1) My mental states are knowable by introspection.

(2) My brain states are not knowable by introspection.

Therefore, by Leibniz’ Law,

(3) My mental states are not identical with my brain states.

One other property difference can be seen in that an empirical observation of whether something is sweet or sour is not the same as an empirical observation of whether a mental state was authentic romantic love or inauthentic romantic love (following the authentic/inauthentic distinction made in the example of attributing “feeling of love” to individual S).

Love and Progress: Living in Our Material World

The fear that results from the implications of eliminativists and the reductionists is that meaningful language, like the word “love,” is hindering the progress of our current neuroscience. Churchland
(1988) cites that more than adequate time has been allowed for the correction of the failures of folk psychology, and yet it “has enjoyed no significant changes or advances in well over 2,000 years despite its manifest failures.” I have yet to see an alternative theory step in, and until I do it does not seem productive to abandon or worry about the possibility of one coming along; it is only important that we understand that neuroscience might have a significant role in helping overcome some of the difficulties that folk psychology currently faces. The most productive way to move forward would be to recognize that both of these modes of study have a meaningful place and neither encroaches upon the other. Folk psychology is not parasitic to neuroscience, but merely symbiotic to our progressive scientific system.

In our future explorations into the brain-basis for our values, our mental states, our emotions, et cetera, we should only take caution as to not forget the ways in which science informs other forms of understanding and vice versa.

Notes
2 Ibid. 67.
3 Ibid. 46.
5 Ibid. 43.
7 Ibid.
8 Ibid. 44.
9 Ibid. 49.
10 Ibid. 44.
13 See Wilfred Sellars, op. cit., 5.
15 Ibid. 22.
16 Ibid. 36.
18 Ibid. 23.
19 Siewert, op. cit., 54.
21 See Siewert, op. cit., 56.
23 See Fisher op. cit., 60.
25 Ibid. 29.
27 See Walter, op. cit., 27.
29 “Curious about the effects of extra OXT, neuroscientists were surprised to observe that administering additional OXT in an otherwise normal female prairie vole results in a weakening of attachment to her mate” Ibid. 78.
30 Ibid. 57.
32 Ibid. 48.
33 Ibid. 26.
34 See Siewert, op. cit., 289.
36 Ibid. 33-34.
40 Ibid. 29.
41 Ibid.
43 Ibid. 46.