

ORIGINAL ARTICLE

The united shades of eliminative materialism

Serdal Tümkaya 

Department of Philosophy, Middle East
Technical University, Ankara, Turkey

Correspondence

Serdal Tümkaya, Department of
Philosophy, Middle East Technical
University, Ankara, Turkey.
Email: serdal82@gmail.com

Abstract

This paper aims to provide a rational reconstruction of the claim of eliminative materialism (EM), espoused by Paul and Patricia Churchland. It will identify and clarify alternative understandings of that view and assess the version that is the most plausible interpretation in the light of the Churchlands' writings and contemporary discussions. The result of the analysis is that eliminativism is best understood as a methodological thesis regarding the scope and depth of the possible revision of (scientific and folk) usage of FP terms and principles. The problem is important not only, and nor primarily, for exegetical purposes. EM functions in contemporary metaphysics of mind mainly as a point of negative reference: for this reason, it is important to carefully formulate the main claim of EM so that the theorists taking part in the debate know what they actually disagree with. The careful formulation provided by this paper could show other philosophers that their position is not, in fact, as far from EM as they might have thought.

1 | INTRODUCTION

One thread in today's naturalism is neurophilosophy, which was founded by the Churchlands.¹ The core assumptions in their arguments are usually dismissed as being very absurd or improbable to be true. Their most seemingly shocking notion is “eliminative materialism” (EM), or simply “eliminativism,” about folk psychology (FP). EM has been characterized in the following manner: a careless production of wild imagination, crazy, and “too insane to merit serious consideration” (Searle, 1992, p. 48); with insinuation that “there is no such thing as believing that there are a lot of cats in the neighborhood” (Putnam, 1988, pp. 58–59); “lead[ing] him [PM Churchland] inevitably to universal skepticism” (Rockwell, 2011); “a neurobiology alone theory” (cf. Boone & Piccinini, 2016; Gold & Stoljar, 1999; cf. Looren de Jong, 2002, p. 449); a “fallen”

comrade and would-be revolutionary who was formerly extreme (Bickle, 2019); self-refuting (see references in Pitman, 2003; cf. Slagle, 2020); “the constructivist thesis that the concept of mind is a social construction on a par with the Greek gods: ‘mind’ is a mythological object fated to be replaced by science” (Leahey, 2005, p. 55); “the claim that no creature has ever had a belief, desire, intention, hope, wish, or other ‘folk psychological’ state” (Henderson & Horgan, 2005, p. 211; in addition, see Slagle, 2020); and an approach whose defenders tend “to see themselves as prophets of a future age” (Lockie, 2003, p. 588).

Let me now summarize the potentially systematic reasons or the conceptual obstacles rendering EM repellant and frequently misreported.

I will focus on identifying and discussing misunderstandings about eliminativism, thereby conceptually distinguishing its forms, and explaining their varying strength in terms of different arguments to support them. Many similar attempts were made recently (e.g., Collins, 2007; Daly, 2013; Hutto, n.d.; Lee, 2018; Pino, 2017). My classification is different from theirs and confined to the Churchlands' eliminativism concerning FP and propositional attitudes. I want to analyze the “eliminative” of EM. I try to show that the word is ambiguous and that several different theories can be spun out of the differing meanings of this term.

I attempt to show that the misinterpretations are interesting because they involve conceptual problems that have not been recognized as causing misinterpretations. These concepts and terms are belief, elimination, EM, and revisionism. It is crucial not to conflate the following logically distinct but somewhat practically connected theses that an eliminativist can hold: 3 theses concerning belief (Bf1–Bf3), 10 theses about elimination and eliminative materialism (EM1–EM10), and 4 theses related to revisionism (R1–R4). There are primarily ontological and primarily methodological versions of EM. With that being said, some versions are ontological, but the real import of the theses is methodological; these are the most vital ones. Except for the two versions of EM, all of them have been explicitly endorsed by the Churchlands; even the other two have been explored and evaluated.

Manuel Vargas mentioned the following: “There are two standard theoretical responses to putative errors in ordinary thinking about some given target property: eliminativism or revisionism. Roughly, eliminativism is the denial that the target property exists, and revisionism is the view that the property exists, but that people tend to have false beliefs about it” (Vargas, 2017, p. 2499). I, however, have a contrasting argument, and I believe that as far as the Churchlands are concerned and about the status of FP, the Churchlands' eliminativism is not the denial of FP unqualified, and not all of the familiar revisionisms related to FP are not based on the viewpoint that “FP is true or its posits are real, but that people tend to have false beliefs about them.” Even when some revisionists really claim that “FP is true but our beliefs about it are wrong,” they do so by suggesting a very loose sense of the term in question.

I consider eliminativism to be a thesis primarily about explanation and method rather than metaphysics or ontology. Elimination or heavy revision of FP is its ontological prediction. As both eliminativism's methodological thesis and ontological predictions are relevant to understanding the Churchlands, I discuss each in the following sections.

What follows is a rough outline of the subsequent sections. Section 2 introduces three different notions of belief. Belief is a prime example of a propositional attitude. The first notion is the direct target of EM. The second is an inclusive conception of belief, which might escape from the fate of a propositional conception. The latter is envisaged to exist within a future neurocognitive ontology. Section 3 distinguishes ten logically distinct formulations or aspects of eliminativism. Some of them are not part of the EM of the Churchlands. Some are primarily ontological, the others are methodological. The dialectic between ontology and methodology is discussed here.

Section 4 examines four versions of revisionism and their relations to each other. The first version is a generic one, the last one is a Churchlands-style revisionism. We will have an extensive examination of Bickle's revisionism in this section, to see more clearly the unique aspects of the Churchlands' revisionism, if there are any. Section 5 is a brief conclusion explaining the importance of the discussion made here with a clear summary of its results.

2 | SEVERAL VERSIONS OF BELIEF: SENTENTIAL, AUSTERE, OR NEUROCOMPUTATIONAL

The propositional understanding of belief tends to be the meaning of “belief” and “desire” in analytic philosophical circles, and according to the Churchlands, this notion is overdue for radical revision, which may result in elimination. I am not satisfied with a ready equation of the FP terms such as “belief” and “desire” with propositional attitudes. The assumption that it is common to read them as something sentential does not hold concerning the broader history or context of philosophy. Nonetheless, sentential reading is common within the contemporary analytic philosophy of mind. Belief is the principal component of FP. Now, let us discuss the several versions of belief and evaluate their relevancy to the Churchlands' eliminativism.

The first version of belief is the paradigmatic understanding of belief in the core areas of analytic philosophy.

2.1 | Belief one (Bf1)

Propositional belief, which is the most important version for this study, forms a part of the core of philosophical psychology. Philosophical psychology is, as Krzysztof Poslajko recently stated, “the folk-psychological discourse as it is being refined and used by philosophers in the broadly understood analytic tradition” (Poslajko, 2020). Beliefs are abstract, inner, information-carrying, mediating, enduring, and symbolic representations of the world. For contemporary analytic philosophers, belief is a propositional representation, attitude, or the proposition represented.

Belief is the foremost example of propositional attitudes, and therefore, a general discussion over propositional attitudes could quickly turn into a debate concerning belief. Paul Churchland summarized that propositional representation “is the fundamental unit of cognition that lives in a space of sundry logical relations with other actual and possible representations, a unit that displays the characteristic feature of truth or falsity” (P. M. Churchland, 2012, p. 4).

The representations are discrete packets of information, which are semantically evaluable and functionally individuated, and symbol-crunching processes act over them. They are amenable to logical operations. This is a general way of human cognition. The propositional attitudes form the systematic core of FP. The Churchlands strongly deny these ontological commitments uniquely posited by the propositional notion of FP. What does “there are no propositional attitudes or sentential representations” mean? The best two-sentence explication is a very slight adaptation from Daniel Dennett (1988), which does not argue against propositional attitudes but argues that our folk psychological notions of qualia are mistaken. I have only replaced the word qualia with the phrase “propositional attitudes”:

My claim [Paul Churchland would say], then, is not just that the various technical or theoretical concepts of the propositional attitudes are vague or equivocal, but

that the source concept, the “pre-theoretical” notion of which the former are presumed to be refinements, is so thoroughly confused that ... any acceptable version would have to be so radically unlike the ill-formed notions that are commonly appealed to that it would be tactically obtuse ... to cling to the term. Far better, tactically, to say that there are no propositional attitudes at all. (Dennett, 1988, pp. 382–382)

Mind seems to be the ultimate producer of beliefs, and the concept of belief plays a crucial role in mainstream epistemology. In this version, denying belief may imply denying the mind itself. This non-necessary relation between the notion of belief and the standard conception of mind is possibly one of the underlying conceptual obstacles for some philosophers to not grasp the Churchlands' eliminativism.

As can be easily observed, this notion of belief substantially departs from our daily usage of the word, which includes uncertainty and has no clear boundaries with related words, such as faith, credence, credit, view, conviction, persuasion, and sentiment. The technical version of belief is subject to norms of truth.

2.2 | Belief two (Bf2)

This is an austere notion of belief. I deliberately leave this version undefined, although I may offer some examples: dispositional states, subconscious states, or gradable notions of belief. In its farther flights, belief might broaden to overlap partially or largely with the extensions of faith, credence, credit, view, conviction, persuasion, and sentiment.

In this version, there are minimal ontological commitments to the nature of belief. Surprisingly, several articles have been written by FP's functionalist friends, with this simple notion to refute the Churchlands' eliminativism. Some strands in Bf2 might still be intimately connected to the notion of truth. However, the implication for believing that something is true is left open (cf. Gendler, 2010, p. 256, n8). This point should be considered in the remainder of this study.

Functional friends of belief have argued that Bf2 is particularly unlikely to be eliminated by the advancement in brain sciences:

Thus, in order to engage with their position [of the Churchlands], we need to provide a case for beliefs and desires which, in addition to being a strong one given what we now know, is one which is peculiarly unlikely to be undermined by future progress in neuroscience. (Jackson & Pettit, 1990, p. 31)

Jackson and Pettit argue to have found “a case which is peculiarly unlikely to be undermined by future progress in neuroscience” (1990, p. 31). As per their understanding, given that FP is purely understood in functional terms, it is distinctively well confirmed. They are justified to claim that they knew in advance that future neuroscience would not eliminate the core of FP. At most, neuroscience will determine that FP considers the functional roles to be incorrect. Fricker makes the following comment on this aspect: “On this view, folk psychology incurs no commitments about the nature of the realization of beliefs and desires in the brain, and so is not hostage to discoveries in brain-science” (Fricker, 1993; see also Steinert & Lipski, 2018). She believes that only an account of the commitments of the central notions of FP will determine the answer to the epistemological question. In addition, Horgan and Woodward (1985) presented similar standpoints while defending FP.

Is this determination the only thing that future neuroscience will be capable of doing? Now, I shall proceed to discuss this question.

When the Churchlands, benefiting from the advancements in brain sciences, talk about a change in the current model of FP, the change is intended to increase our predictive, explanatory, and manipulative capacity. These modifications can be modest or drastic, depending on careful considerations. The Churchlands' continuing search for more accurate theories of cognition is the real drive behind their criticism of FP. In fact, "not-in-charge thesis," which is one of the most conspicuously methodological versions of EM that I explain at the end of the last section before the conclusion, can be considered a call for philosophers of the mind to keep pushing toward more empirically accurate theories of mind. However, it might be highlighted that even those who think FP "is here to stay" do endorse this moderate statement:

Third, we are not necessarily claiming that FP is fully correct in every respect, or that there is no room to correct or improve FP on the basis of new developments in cognitive science or neuroscience. Rather, we are claiming that FP's theoretical principles are by and large correct and that everyday folk-psychological ascriptions are often true. (Horgan & Woodward 1985, p. 199)

The phrase "by and large" in the abovementioned statement refers to the integrity and rough truth of FP. What is here to stay is our inner states' functional characterization or an abstract characterization of their revised version (P. M. Churchland, 1981, p. 77). In the limiting case, the function's very abstract characterization makes the relevant theory an uninterpreted one, thus saying nothing and having no ontological commitment. The authors would therefore say, "the overall causal architecture posited by FP remains largely intact" even under extensions and partial modifications. This factor is hardly a wholesale rejection of FP notions. At first glance, one might assume that this is a plausible objection against the Churchlands. However, upon closer inspection, its plausibility quickly disappears. This overall causal structure is very thin to deserve a name structure. Naturally, most extensions and partial modifications do not mean elimination in any sense. These types of revisions are much less than radical revision. The overall causal architecture posited by FP remains largely intact" even under extensions and partial modifications. This factor is neither a wholesale rejection of FP notions nor novel information for the Churchlands, who themselves already assume so. If Horgan and Woodward just mean that partial modifications do not justify elimination, they express a truism.

2.3 | Belief three (Bf3)

This version is a future neurocomputational replacement for belief. I regard it as the Churchlands' belief, if there would be any, a nonsentential form of our inner information-bearing representations. It is a well-known aspect that these representations are activation vectors in multidimensional state spaces. Vector-to-vector transformations replace the logical operations, and instead of propositional attitudes, the system works with numerical attitudes. These sorts of representations are best modeled in parallel-distributed connectionist neural networks. In addition, complete details can be found in Churchland (2012).

Particular notions of belief are of utmost importance for the eliminativism debate. As we will see, whereas propositional belief is the main target of EM, the status of austere belief is hard to know. More importantly, it can reasonably be said that neurocomputational belief is

It is also perfectly possible that there might emerge certain new concepts between the levels of epistemology and psychology or between psychology or neuroscience. Since the revisionism we are talking about is ‘revisionism in action,’ we give some concrete examples currently encountered in the intersection of neuroscience and psychology. For instance, neuroscience and psychology researcher Lisa Feldman Barrett, as one of the reviewer’s rightly emphasizes, is an excellent instance of the revisionist scientists of cognition. Barrett gets close to the Churchlands’ position when she asserts that she is very skeptical of a neat mapping between brain categories and current psychological categories. Despite the eliminativistic tone in her arguments, she never sees herself as an eliminativist (Barrett, 2009). Instead of denying an existence to the emotions, Barrett (2006) posits intermediate level psychological constructs to account for them. These constructs are still psychological level entities or processes. The primary advantage of these is that they are better at linking the upper and lower levels of explanation. Both these, and the emotions are real, but they are real in different senses of the word (Barrett, 2006). This is revisionism in action. What we need to advance the revisionist front are attempts such as these. Unfortunately, this intermediate level reconception is not something the Churchlands are genuinely interested in. The reason is not that they are against such strategies; they have no quarrel with this sort of work. However, they are more interested in finding neurobiologically grounded categories, which never imply purely neurobiological concepts

Contemporary eliminativism emerged through increasing uneasiness with the narrow terms of the debate over human cognition and the reliance on concepts such as sentential belief and desire. It presents a new way of thinking about human and animal cognition. Its central thesis is that the propositional understanding of FP is neither manifestly nor divinely given. FP is subject to familiar pressures to change as other theories and terms. The foremost ontological prediction of eliminativism is that propositional attitudes will probably not be a part of a future cognitive neuroscientific vocabulary. This prediction presumes that FP is across-the-board revisable, and its complete elimination could be coherently entertained from an a priori reasonableness perspective. The core of the current propositional model of FP, namely, the propositional attitudes, will probably be gradually sidetracked from scientific vocabulary; although for practical reasons, it may remain in usage concerning our daily transactions. Any model of FP that does not rely upon propositions and propositional attitude reasoning could survive the rise of a mature cognitive neurobiological account of cognition. Particularly an austere notion of FP in its relation to the folk vocabulary is not the target of eliminativism. The widely held claim that the Churchlands envisage a future wherein the terms such as belief and desire unqualified will be lost from scientific *and* folk discourses is simply a mistake. Such kind of elimination is nothing more but a mere possibility.

According to the Churchlands, EM is eliminative because it seriously considers the eradication of FP from scientific discourse. It is not only a mere possibility but also a richly possible one. Apart from this ontological thesis, which is a meek prediction, eliminativism is primarily a three-part methodological notion: (i) The propositional attitude reasoning is not in charge in the study of cognition; (ii) It is not the case that the only possible job for neuroscience is to search for the realizers of the present or future folk categories; (iii) As we learned from the brain and behavioral sciences, we likely feel the pressure to revise, modify, or upgrade our self-conception. To commit to the familiar ontology is human, but to revise the methodology, divine.

In the rest of this section, the reader will find a fully elaborated classification of the factually offered versions of eliminativism either by the Churchlands or their critics. Whether a particular version (i) is outdated; (ii) is a part of the original formulation; (iii) is minimal or revolutionary; (iv) is adopted or just entertained as a futuristic exercise; (v) has only been explored but not endorsed; (vi) is pertinent to the ontological or methodological level; (vii) or has been more emphasized by Paul or Patricia Churchland have been discussed within the word limits; besides, whether any specific thesis (viii) is mistakenly attributed to the Churchland like EM3 and EM6; (ix) is more dramatic than the others, and (x) and presents a bleak picture for our self-conception or an integral part of the Churchlands' eliminativism is touched upon.

The versions of EM are divided into those that consider issues with aspects of propositional FP and those that provide positive proposals. I provide clarifications mainly on those in the first class. Conversely, I make quite a few detailed explanations on those in the second to reveal that only these are the crucial and integral parts of EM. A glance at the relevant versions may highlight disagreements and orthogonal viewpoints, but I think a closer look reveals a much more coherent picture: an official pronouncement for a coevolutionary study and personal predilection for bottom-up strategies. Predictive ontology is thus a bonus.

Further, even without any ambiguity, it is tricky to truly determine the strength of a philosophical idea; ambiguity makes it trickier. In our case, ambiguity does not lie between two senses of the term, the two variants of the theory, or the two reconstructions suggested by the sentence expressing the general idea, but it lies among 10 endorsed or explored versions of EM. I am deliberately excluding the other logically possible reconstructions of eliminativism because this study does not explore the logical space but reviews the factually occupied theoretical landscape.

Different perspectives, focuses, and emphases of its versions empower the general idea. However, little incompatibilities may prevail among these 10 versions of EM. To avoid any potential problem, the force of some of those should be diminished and controlled by others. My interpretation therefore brings methodological eliminativism at the center, thus diminishing the force of the ontological versions.

3.1 | EM1

The thesis from revisability at every level of theory, distinct from somehow related thesis EM7, the thesis from FP's eliminability.

As Fricker summarized, EM claims that "[o]ur current self-conception is not indispensable or immutable, but is subject to pressures for change, and will in time be superseded by a different self-conception" (Fricker, 1993). This is a minimal conception of eliminativism, with which the Churchlands fully agree. Even once Patricia Churchland defines EM with arguing revisability of theory at every level (P. S. Churchland, 1986, pp. 241–242). The Churchlands believes that FP "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” (P. S. Churchland & Churchland, 1996, p. 299).

Both of them have consistently emphasized this version. That FP is not manifestly given was the original version discussed during the seventies, the eighties, and the first half of the nineties. This revisability question is immediately connected to the coherence and intelligibility of eliminativism. The revisability of the core of FP has become much less controversial in the last two decades. Only after “having reached this opinion,” Paul Churchland says, “we may be forgiven for exploring the possibility that FP provides a positively misleading sketch of our internal kinematics and dynamics ...” (P. M. Churchland, 1981, p. 74).

Today's question is whether some or all FP posits will actually be eliminated, or are some posits of FP improbable to be refuted by the future neurobiological progress (e.g., Jackson & Pettit, 1990). Besides, for some philosophers of mind and many philosophers of cognitive science, the current question concerns cognition itself, not the propositional attitudes. Propositional attitudes are the subject of the second version.

3.2 | EM2

“No propositional attitudes thesis.” An ontological claim to the effect that certain entities postulated within FP do not exist. It is an immediate application of the term eliminativism, about anything, to the effect that it does not exist. The Churchlands do endorse it. Arguably, Paul Churchland has slightly more emphasized this version than Patricia Churchland. To put it plainly, the propositional attitudes are eliminated from our ontology as explanatory entities.

It is primarily applicable to propositional attitudes. At the ontological level, it is an essential part of the Churchlands' notion of eliminativism. It means that none of our causally efficacious internal states could be identified with propositional attitudes. This kind of EM is still philosophically relevant. Despite this, philosophers, especially those in much sympathy with cognitive science, do not today see the connection between propositional representations and FP as necessary or crucial as elder philosophers used to think. In any case, the thesis remains highly controversial.

This predicted elimination primarily concerns scientific theory and vocabulary. Applying it to the folk discourse is quite a different problem, which we will discuss in the next version of EM.

3.3 | EM3

“A futuristic thesis” that specific FP categories will be eliminated from the folk discourse (see Collins, 2007). It is possible but does depend on social, political, economic, or other pragmatic factors. Arguably, Paul Churchland has much more underscored this version than Patricia Churchland (P. M. Churchland, 1981, sec. V). In his most enthusiastic writings, he blesses the potential benefits of the future cognitive neuroscientific framework in that it frees lay people from the cruelties and constraints somehow connected to the current FP.

Concerning the Churchlands, overall, this version is not a *central* part of the serious debates over the status of eliminativism. In folk discourse, some scientifically discarded posits might enjoy longer lifetimes, albeit being somewhat modified. Having set the scene in the far future, when complete cognitive neuroscience, a true science of mind, has been achieved, and things are highly different in this post-propositional attitude era, the Churchlands think, eradicating FP

from the daily discourse is likely. This is simply an exercise in futurism. Endorsing this thesis is too risky. More importantly, it remains unclear what kind of evidence is needed to establish it. If understood as an endorsement instead of an exercise in futurism, this version of EM is hardly defensible. Conversely, the next version of EM characterizes an attitude emphasizing the opposite outcome regarding FP's fate in daily discourse.

3.4 | EM4

“Old ways die hard thesis.” The propositional attitudes do not exist, but the Churchlands are hesitant about the possibility of elimination of FP talk from everyday discourse. The continuation of the use of a term can occasionally be reconciled with a rejection of its objects (see Daly, 2013). In the previous version, I told that Paul Churchland fervently anticipates how completed neurobiology or cognitive neurosciences would alter folk discourse in our daily commerce. Here, we see how even Paul Churchland is cautious, even in 1981, on the practical effect of the neurobiological success over the common practice:

A theoretical outcome of the kind just described may fairly be counted as a case of elimination of one theoretical ontology in favor of another, but the success here imagined for systematic neuroscience need not have any sensible effect on common practice. Old ways die hard, and in the absence of some practical necessity, they may not die at all. (P. M. Churchland, 1981, pp. 85–86)

Belief and desire unqualified (Bf2) are, of course, a part of FP in general, and it may turn out to be practically indispensable. However, in its technical sense, the propositional conception of them (B1) has been nearly dominant, at least in some parts of philosophy, cognitive science, and behavioral economics. According to the Churchlands, this conception is perfectly dispensable, yet it might turn out that belief and desire unqualified are of practical use. As Jackson and Pettit put it when they are summarizing the Churchlands' position concerning the destiny of FP: “Folk psychology may be left with instrumental value, or perhaps with approximate truth, but not with truth itself” (Jackson & Pettit, 1990, p. 44).

Yes, there were occasions when Paul Churchland tried to push the bottom-up strategy to the dramatic extremes. However, very few remarks made by the Churchlands fit into the global eliminativistic garb that the critics try to dress them in. Nonetheless, if one wants to see a drama, she should go to the next version.

3.5 | EM5

“A meta-scientific thesis” that specific categories of FP should or will be eliminated only from mature cognitive neuroscience (cf. Collins, 2007).

The Churchlands do see it highly likely. Both equally put forward this version in their official pronouncements of EM. At the ontological level of the discussion, this version is at the heart of the Churchlands' understanding of eliminativism. Conversely, it is still not a part of the following if the word “culturally” refers to the ways of our daily transactions: “We can and probably will evolve, intellectually and culturally, to a post-propositional-attitude era” (Fricker, 1993, p. 254). If

Fricker's summary of the approach of the Churchlands seems dramatic, the next version of EM will prove to be tragic.

3.6 | EM6

"Eradication from all dimensions of existence thesis." Folk psychological framework and its posits will be eradicated from both folk discourse and scientific vocabulary. Epic-scale explanatory failings of FP provide evidence in favor of EM.

The Churchlands take its possibility seriously. Its a priori reasonableness should be taken seriously. Nevertheless, it is only a possibility, albeit a rich one. The claim that the folk psychological framework and its posits will be eradicated from the folk discourse is irrelevant since what will happen in everyday discourse is not central to the general approach of the Churchlands. The second part has been discussed above. The next version will not provide us with an even more unsettling version of EM. On the contrary, it will begin to sketch the original and authentic methodological claims and the ontological predictions of the Churchlands' eliminativism.

3.7 | EM7

The thesis from FP's eliminability, different from somehow connected EM1, the thesis from across the board revisability. The distinguishing feature of the eliminative materialist is as follows. She takes it very seriously that any theory that meets the specified description must be allowed a serious candidate for outright elimination. Among then-known approaches, only EM *used to* take the possibility of an across-the-board elimination of FP seriously, at least as an a priori and abstract possibility, at best a richly possible one:

Given that folk psychology is an empirical theory, it is at least an abstract possibility that its principles are radically false and that its ontology is an illusion. With the exception of eliminative materialism [EM7], however, none of the major positions takes this possibility seriously. None of them doubts the basic integrity or truth of folk psychology (hereafter, "FP"), and all of them anticipate a future in which its laws and categories are conserved. (P. M. Churchland, 1981, p. 72)

Taking that possibility seriously is what makes an eliminative materialist eliminativist. It was the original formulation of EM defended in Paul Churchland's original paper (1981, p. 76). However, this version of eliminativism is only essential when argued against the following claims: "Some philosophers have alleged that talk of mental states is so vital to our practical and intellectual lives as to be indispensable. Attempting to dispense with such talk has even been said to be 'practically incoherent' or to lead to 'cognitive suicide'" (Daly, 2013, p. 561).

The problem with this version is that, despite being the original formulation of (Churchland-type) eliminativism, this eliminativist claim has become, in the 2000s, rather less controversial than forty years ago. It now seems rather moderate or at least not radical. In any case, especially in the philosophy of cognitive science and in most parts of philosophical psychology today, many would say that there is now a somewhat consensus that eliminativism is a genuine and serious possibility for some of the propositional posits of FP.²

However, Paul Churchland, in the same article, also formulates the core of EM as follows: “Thus the basic rationale of eliminative materialism: FP is a theory, and quite probably a false one; let us attempt, therefore to transcend it” (P. M. Churchland, 1981, p. 76). One might be justified in saying that there is an ambiguity in Churchland’s characterization of EM’s core in his seminal paper. This second reading of the core of eliminativism should be considered emphasizing its methodological side. Assuming that the second characterization is the true one, we are justified in saying that eliminativism has been a methodological proposal from the outset. The first one is emphasized more by Paul, but the second one by Patricia Churchland. Why? To a certain degree, the reason is that there is quite a dialectic between the ontological level and the methodological one. The explanation is distributed over the remaining three versions of eliminativism.

3.8 | EM8

Bottom-up strategy thesis. Paul Churchland’s seminal paper, on the last page, summarizes itself as follows:

The propositional attitudes of folk psychology do not constitute an unbreachable barrier to the advancing tide of neuroscience. On the contrary, the principled displacement of folk psychology is not only richly possible, it represents one of the most intriguing theoretical displacements we can currently imagine. (P. M. Churchland, 1981, p. 90)

This version limits itself to attacking the propositional attitudes. Alternatively put, it argues against sentential psychology.

If FP concepts are likely to be flawed, they should not serve as a starting point for top-down research on cognition. We should work bottom-up, starting with robust and reliable data from neuroscience. The previous sentence does not imply that all philosophers or cognitive scientists should start bottom-up. It is only the personal choice of the Churchlands. Their predilection is for the brain sciences. (Conversely, their suggested research strategy is a co-evolutionary study.) Both of the Churchlands have insistently emphasized this methodological version. In a sentence, EM8 claims the propositional conception of FP to be flawed beyond conceivable revision.

The next version is expressed in moderation, though its content is highly similar, with a difference in blurring the distinction between the Churchlands’ predilections and their official pronouncements regarding the best research strategy. With this formulation, eliminativism becomes less repellant for some philosophers.

3.9 | EM9

“Not-in-charge thesis.” As Murphy said, “The real lesson of eliminativism is not that neuroscience should replace FP, it is that FP is not in charge. It is not the case that there is a level of explanation defined in folk psychological terms and the job of neuroscience is to look for the realisers of those folk categories” (Murphy, 2017, p. 167). The Churchlands would wholeheartedly agree with this.

At the methodological level of the debate, this version of eliminativism is the most relevant one in the current controversies in philosophy of mind and cognitive science. It is the one that

directly puts eliminativism under the parent category of revisionism and has been pronounced in this form on many occasions, especially by Patricia Churchland. In parallel, Paul Churchland's one of the original reasons was to liberate the study of cognition from FP's constraints (P. M. Churchland, 1981).

In the past, when top-down functional characterization of cognition, inspiring from the classical cognitive model, used to seem the only game in town in the philosophy of mind and cognitive science, EM9 was unpopular. As of today, we have not only non-propositional conceptions of cognition but also have non-representational notions of it. Many of these novel research programs do not treat FP as the categorizer-in-chief.

3.10 | EM10

My thesis. Here is my summary of the Churchlands' eliminativism, based upon synthesis and furthering version eight and version nine. At the last edifice, EM's primary claim is that, as we learned from the brain and behavioral sciences, we likely feel pressure to revise, modify, or upgrade our self-conception (Mölder & Churchland, 2015; Moscow Center for Consciousness Studies, 2015). The claim does not say that we ought to amputate FP due to its abject poverty. Revision is imperative; elimination is predictive (for a different emphasis, see P. M. Churchland, 1981, p. 72). The outcome "would seem to be an open question, to be decided only by developments in the fullness of time" (Hannan, 1993, p. 172). Patricia Churchland has heavily emphasized, and Paul Churchland occasionally has expressed this version (P. M. Churchland, 1998; P. S. Churchland, 1986, 1988; P. S. Churchland & Churchland, 1996; Mölder & Churchland, 2015; Moscow Center for Consciousness Studies, 2015).

At the ontological level, EM5, a meta-scientific thesis, is the authentic claim of the Churchlands. It has not been only explored but also endorsed. The Churchlands have extensively argued for this claim throughout the last four decades. The other ontological claims made by them are meek predictions and have no bearing on their eliminativism's methodological side.

At the end of the following section, I will explore the implications of EM10 for each of the alternative revisionisms. Finally, the reader might ask whether retaining the title EM for the view I presented has much value. I tend to give a negative answer to the question. Retaining the title has not much value, but replacing it is not practical. More importantly, since the EM of the Churchlands suggests the ontological elimination of the propositional attitudes from future scientific ontology as explanatory entities, eliminativism of a limited sort is available here.

4 | THE VERSIONS OF REVISIONISM: LIMITED REVISIONS AND "NO-LIMIT TO REVISION" VERSION

As so minimally characterized, EM would count as a brand of the familiar revisionisms so far that the approach leaves open how much revision our current ideas will undergo as psychology and neuroscience proceed. The Churchlands have no ideological stake in the revision being massive or minor, though their expectations lean toward the former (P. S. Churchland & Churchland, 1996, pp. 298–299). For these reasons, I argue that revisionism and eliminativism should not be characterized as being opposed as they often are.

Revisions are inevitable; elimination is possible. Taking very seriously the possibility of outright elimination of FP posits is what makes EM eliminative, or what makes RM revisionary:

“The possibility of nontrivial revision and even replacement of existing high level descriptions by ‘neurobiologically harmonious’ high level categories is the crux of what makes eliminative materialism *eliminative*” (P. S. Churchland, 1994, p. 26); this though is continued in the associated note of this passage: “Or, as we have preferred but decided not to say ‘what makes revisionary materialism *revisionary*’” (P. S. Churchland, 1994, p. 39, n7).

4.1 | Revisionism (R1)

According to Ramsey, “The term ‘revisionary materialism’ is often invoked to denote the view that the theoretical framework of folk psychology will only be eliminated to a degree, and that various dimensions of our commonsense conception of the mind will be at least partly vindicate” (Ramsey, 2020). On this conception, revisionism is a middle way between full-blown eliminativism and complete reductionism. It denies relatively smooth reduction but does anticipate the extremely bumpy ones (cf. Bickle et al., 2019, sec. 2). In this unqualified sense, R1 is typically in partial conflict with Bf1 (propositional), neutral against Bf2 (austere), but argues against Bf3 (neurocomputational). As it concerns eliminativism, R1 is perfectly compatible with EM1, EM2, EM4, EM5, EM8-9-10. It is not sympathetic to EM3 and EM6. Conversely, it is in open conflict with EM7 that takes the full elimination of FP seriously.

R1 might not pick out *current* FP as non-revisable at its core. Even though when it argues for the non-eliminable core of FP, R1 may “claim only that some abstract functional characterization must be retained, some articulation or refinement of FP perhaps” (P. M. Churchland, 1981, p. 78). R1 seems highly plastic. Whether it is sufficiently plastic to incorporate the barrage of the discoveries, facts, insights, and concepts from the brain and behavioral sciences remains an open question.

4.2 | Revisionism (R2)

Revisionary Physicalism, a specific installment of R1. Bickle (1992, p. 411) argues that “[revisionary physicalism] predicts enough conceptual change to rule out a straightforward realism about the attitudes; but at the same time it also resists the eliminativist’s comparison of the fate awaiting the propositional attitudes to that befalling caloric fluid, phlogiston, and the like” (cf. 1998, sec. 6).

Bickle (1992, p. 412) also adds that “the revisionist foresees the preservation of other ‘core properties’ of the propositional attitudes within the explanatory posits of a matured cognitive neuroscience.” This version anticipates an ontology of mind, which will probably have emerged from a long conceptual revision process. The surprising claim comes later:

Perhaps the clearest way to contrast the revisionist’s ontological position from the Churchlands’ eliminativism is to say that, according to the revisionist, *one kind of representation concept* (one kind of belief concept, one kind of desire concept) is *being replaced by another kind of representation concept* (another kind of belief concept, etc.). (Bickle 1992, p. 428)

It is astounding because what Bickle presents as a defining attribute of RP had already been embedded in Churchland-type epistemology in Paul Churchland (1988, 1989, 1992), that is, a

subsentential neurocomputational account of our information-bearing cognitive inner states, and has been vaguely foreshadowed by him exactly half a century ago (1970, 1979). It becomes evident that Bickle proposes a distinction without a difference if the contrast is what he says. Many others have also made the same mistake. The things Bickle listed to show the differences of his approach from the Churchlands' eliminativism are entirely part of EM and have been repeated countless times over the last forty years. Indeed, a revisionary approach, which goes hand-in-hand with co-evolutionary research strategy, has always been at the core of EM10.

Bickle proposes "some 'core' properties of the propositional attitudes, properties that any 'vindicating' scientific successor must by and large preserve" (1992, p. 412). This last proposal makes it too hard to give a coherent judgment concerning RP (R2). Much more surprisingly, seven pages later in the same article, he notes that:

Since he [the revisionist] foresees a replacement or eschewal of some of the core properties of the attitudes, propositional attitude psychology must also be deemed 'in a fairly strong sense ... conceptually and empirically wrong and must be replaced.' This is the eliminativist strand in revisionism. (Bickle, 1992, p. 419)

If Bickle tries to say that, as I argue for, it is too hard to determine whether some conceptual change should be dubbed revision or elimination, I agree with him. By extension, it could be stated that any substantial to radical revision in an established concept might be thought of as elimination, of a sort. Had not Bickle proposed that some part of the core of propositional attitude psychology must be by and large preserved, I would have said that his version of revisionism is directly against Bf1. Now I cannot.

Bickle's proposal genuinely implies that the elimination of the entire core of FP is to change the subject. It equals to saying EM7 is unintelligible. It does not even have a priori reasonableness. He prescribes that any future successor must preserve some part of the core of FP. If a future brain or cognitive scientific one will replace the notion of propositional representation, as he says he predicts (1992, p. 424), what part of the core of FP, no matter what will be saved? If propositional representation is not propositional at all, what would it look like? What kind of revision is it to exterminate the one particular property that makes propositional attitudes propositional?

Just on the next page, we are suddenly illuminated. Bickle envisages that the advancements in cognitive neurobiology refute the sentential character of the representation but forces propositional attitude psychology to spawn new posits to become aligned with the scientific progress (p. 425). Bickle should be assuming that there are states that are not sentential yet propositional. I am not sure whether this assumption is deliberate. I have no idea about the nature of the sentential states that are not propositional. It is also possible that on page 425, Bickle has the *austere version of FP* in mind. Then why insist in the thesis that some part of the core of the *propositional attitude psychology* will and must be preserved?

Bickle, on page 423, hinted at three distinguishing marks of revisionism as a possible explanation: the reduced theory's approximation to the reducing one, conceptual fragmentation resulting in distinct but related concepts, and mutual evolutionary feedback between the reduced and the reducing theories. He gives the details in the following pages (1992, pp. 425–428). Briefly, he describes a familiar revisionary theoretical and conceptual change in physics—the reduction of equilibrium thermodynamics to the kinetic theory and statistical mechanics—and concluded that the fate of propositional attitude psychology would be similar to that.

With the claim that this particular example in physics satisfies all three so-called distinguishing marks of revisionism, I fully agree. Making the same ontological prediction concerning a

nonsentential yet propositional attitude psychology, whatever that means, is a quantum leap. It would not be a quantum leap if what Bickle in mind is the austere version of FP. Charity principle does not find an application here, for Bickle himself in the first note claims that “there are important dissenters [such as] Terence Horgan and George Graham's (1991) ‘austere’ conception of folk psychology; and Frank Jackson and Richard Pettit's (1990) account” (1992, p. 429, n1).

These are the dissenters about preconditions of the existence of FP posits. They are dissenters because they adopt an austere conception of FP. Bickle is not a dissenter. His FP is the propositional notion of FP. Thus I have to conclude that despite its rhetoric (i.e., saving intentionality in a very loose sense and wildly coarse-grain functional characterization of FP), Bickle's revisionism (R2) smoothly amounts to the Churchlands' eliminativism (R4 or EM5 or EM8 or EM9 or EM10).³ It is so because he grants that “propositional attitude psychology ... must be replaced” (1992, p. 419).

4.3 | Revisionism (R3)

Restrictive Materialism. Bennett Holman describes, “the position holds that while the ontology of folk psychology is overextended, there is a restricted domain in which the application of the folk ontology remains secure” (2011, p. 61). This version restricts the applicable area of Bf1 but argues against Bf3. This version “avoids the extreme position taken by a strict realist because it acknowledges that we are continually surprised to what extent we are strangers to ourselves. [It] does not suggest that all of the story will be told with familiar terms” (2011, p. 67). Such is compatible with revisability thesis (EM1) and the thesis related to the methodological level, such as EM8-9-10. For the other versions of eliminativism, R3 has no sympathy. Alleged universality of belief and desire posits, their perceived great utilities in social and behavioral sciences, and how children develop a theory of mind (pp. 62–68) are sufficient for Holman to refute the ontological predictions of eliminativism (EM2-3-4-5-6). R3, too, is a particular installment of R1. I use R2 and R3 to illuminate the possible articulations of R1. There might be many other revisionist philosophies concerning FP, but the general structure emerges from these two specifications.

4.4 | Revisionism (R4)

“Churchland's revisionism” or “no-limit to revisions.” Revisionism leaves open how much revision our current ideas will undergo as psychology and neuroscience proceed (P. S. Churchland, 1988, p. 398). The Churchlands have no ideological stake in the revision being massive or minor. However, their expectations lean toward the former (P. S. Churchland & Churchland, 1996, pp. 298–299). EM should be seen as a methodology suggesting the reconception of our psychological classifications, not as an ontological thesis. As we are gleefully pulled to transcend or replace old macro-categories, new intra-level or micro-level posits emerge, but this has nothing to do with EM's being heavily bottom-up oriented (P. M. Churchland, 1998, p. 903).

Unless it is endowed with EM10, the Churchlands' general approach to FP's destiny is still somewhat different from the several kinds of revisionism such as R2 and R3 discussed above. Endowed with it, R4 differs from R1 only in emphasis and its willingness to bet on the risky game of far-future ontological predictions. More importantly, when closely scrutinized, the difference between R2 and R4 becomes blurred. After all, R2, at the last edifice, amounts to replacing the propositional notion of representations. Conversely, R3 is distinct from R4.

5 | CONCLUSION

This paper casts its net widely over a body of literature now spanning four decades, and highlights many important and bold claims and ideas about FP that have flowed from the work of the Churchlands. The central parts of the paper are those that engage with questions about the likelihood and extent of revisionism about FP and its central terms such as ‘belief.’

My paper might not significantly advance debates regarding future explanatory ontologies emerging from the interdisciplinary sciences of the mind. Such a work will lead us to a very different project, which would be valuable in itself. However, the methodological elements that I associate with EM are worthy of independent discussion, most especially (as one of the anonymous reviewers noted) if these are stripped of their eliminativist trappings.

A clear summary of my results is as follows. Despite its name, the EM of the Churchlands has no ideological stake in the scale of revisions that will be made to FP or to propositional attitudes. The process is open-ended and we are unlikely to know the results. But we know something for sure. The propositional notion of FP, which may become a liability instead of an asset in the study of cognition, should be upgraded to the extent that revisions are still not beyond conception. FP has been for decades a key categorizing tool in the study of behavior and mind. This role of FP is exactly why the words elimination and eliminativism are most relevant and urgent.

Whether laypeople will transcend FP terms and start to talk in a more neuro scientific vocabulary might be a valuable philosophical exercise. However, it is not an integral part of EM as its founders originally formulated it. The dynamics of the change of talk are too complicated both in the scientific realm and in the marketplace. There are psychological, occupational, social, political and other sorts of pragmatic factors involved.

Today, the up-to-date message of EM is just methodological, in a short but coherent picture: an official pronouncement for a co-evolutionary study and an invitation to take the brain sciences more seriously, not only in our philosophical studies but also in scientific psychology and other related disciplines. Moreover, their positive proposal of a nonsentential model of our inner states has already been explored and endorsed in parts of contemporary cognitive science and somewhat applied, in a looser form, in artificial intelligence. Not that I am saying the neurocomputational replacement of belief has been achieved. No, it has not. Perhaps, after having achieved an unsupervised learning neural network capable of reducing what we will then know about the higher cognitive functions, especially learning, behavior, and cognition, and gives us more insights into them to find new mysteries to solve, the triumph song will play.

CONFLICT OF INTEREST

I have no conflicts of interest to disclose.

ORCID

Serdal Tümkaya  <https://orcid.org/0000-0002-2453-4184>

ENDNOTES

- ¹ The study's focus is on “the Churchlands,” treating them as a single entity. It may seem inappropriate. Paul and Patricia Churchland are two distinct persons, each with their philosophical career, outlook, and position. Their positions are not precisely identical, with her being more neuroscientifically oriented than him. Nevertheless, there is no conceptual or theoretical difference, except the differences in emphasis, between Paul and Patricia

Churchland concerning the points discussed in this study. The quotes stem equally from both. Despite these, at any philosophically relevant point wherein either of them is more committed to, or much emphasized a particular version of eliminativism, I make it explicit.

- ² Limited, fragmented, and indirect evidence for these claims can be found in Bourget, David & Chalmers, David J., *Philosophers on Philosophy: The 2020 PhilPapers Survey*. PhilArchive copy v1: <https://philarchive.org/archive/BOUPOP-3v1>. I do not want to mislead the reader. What I have said is, if true, only valid in the philosophy of cognitive science and related subdisciplines. Even within the philosophy of cognitive science, philosophers of cognitive science in some parts of the world are hostile to any version of eliminativism concerning propositional attitudes.
- ³ Endicott and Wright have several publications to argue that Bickle's revisionary physicalism and even his new wave reductionism is actually EM in a disguised form (Endicott, 1998, 2007; Wright, 2000). Precisely for this observation, they might think that what I am saying herein is the inverted version of theirs. With this, I agree. However, I do not argue for the idea that revisionism in some form collapses into eliminativism. Conversely, it is the EM itself that has always been a strand of revisionism. The name EM happens to be a historical contingency.

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