South African Journal of Philosophy 2022, 41(4): 347–359
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SOUTH AFRICAN JOURNAL
OF PHILOSOPHY
ISSN 0258-0136 EISSN 2073-4867
https://doi.org/10.1080/02580136.2023.2199607

In defence of Churchland-style eliminative materialism: Objections and replies

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The Churchlands are notorious for their theory of eliminative materialism (EM). This theory has become associated with scientism and a possible death of philosophy. In this article, I will closely examine the most common accusations made against EM and try to give an overall assessment of them. The conclusion is that EM survives most of the criticisms levelled against it. For sure, there are many things to do to improve on the current form of the theory, but none of them seems to be unsurpassable. The charges of blind enthusiasm, reductionism, neuroscience exceptionalism and scientism originate from widespread misconceptions about the nature of actual science. Furthermore, the objection that EM is self-defeating is answered.

Introduction

Why do the vast majority of analytic philosophers, as well as many naturalist philosophers, vehemently oppose eliminative materialism (EM)?[1] There have been many overt objections and much intuitive resistance to eliminativism. Charges of scientism, self-defeat, changing the topic, exaggeration, blinding enthusiasm, futurism, neuroscience exceptionalism, reductionism, dismissing social and cultural influence and promoting the death of philosophy are conspicuous. The intuitive resistance, meanwhile, relates to worries about the possibility of philosophy losing its autonomy. Let me start with the accusation of scientism.

Scientism

Philosophers typically characterise scientism as an exclusivity claim about science: The final say belongs to science; legal systems, morality, political regimes, educational policy and financial problems can all be effectively addressed primarily by science, particularly the natural sciences. Most of the foundational issues surrounding eliminativism turn on the issue of scientism, adopted in one way or another (Trout 1991; Gold and Stoljar 1999; Leahey 2005; Haack 2016). First, let me briefly sketch what the scientism debate is about and why it seems crucial to many philosophers.

Scientism is an excessively uncritical and deferential attitude toward science. At least we can reasonably say that scientism repudiates first philosophy and enthusiastically embraces final science, meaning that this philosophical stance envisages science as capable of proving final and stable knowledge of everything in the future. To put it differently, this is the uncritical application of scientific methods to what some deem to be inappropriate fields of investigation. When science transgresses its proprietary domain, it becomes scientistic. The domains that are allegedly closed to the scientific method are common sense, religion (Gould 1999)[2], philosophy (De Caro and Macarthur 2004) and other humanities (Putnam 2010). Let us now consider the philosophers who see scientism as espousing scientific positions.

1 I greatly appreciate the constructive criticisms and the recommendations of the anonymous reviewers of this article. I have tried to incorporate all of their suggestions.

2 Gould is a lone voice in the wilderness. Most scientists think they have a right to comment on religion.

James Ladyman asserts that where science conflicts with religion, common sense, or tradition, we should take science to be authoritative (also see Churchland and Churchland 1978). For Ladyman (2018, 113), "the core positive commitment of scientism is that there are no domains of inquiry that are in principle off limits for science".

Hilary Kornblith (2018, 127), meanwhile, explicitly argues that "we should endorse features of the manifest image only to the extent that they are part of the scientific image". He argues that there is a conflict between the manifest and the scientific image. The manifest image denotes the world as it seems to us or the world we live in. For instance, the manifest image of human cognition is folk psychology, a theory of person. Using physical explanations alone, scientism would reduce us, à la Churchland and colleagues, to mere neurological computers, whereas folk psychology prioritises private mental states whose agents (i.e. persons), have direct private access to the memories and sense qualitative experience.

Let us consider whether either Paul or Patricia Churchland deserve the title "scientistic" in either its pejorative or its favourable usage. They are reductionist, as their adopted research strategy is bottom-up. This much is uncontroversial. They also acknowledge that they are naturalists and physicalists. However, it is also certain that they draw on social and human scientific studies extensively. So they are exempt from at least one definition of scientism.

Patricia Churchland frequently notes that she rejects the idea that "ought" can be deduced from "is". What exists might illuminate normative and evaluative problems, but it is not a direct and definitive answer to them. In this second sense, she is not scientistic. Let us now look at some other versions of scientism to see whether any of them matches either of the Churchlands.

Do they uncritically receive what scientists tell us? I think there is something seriously wrong with this suggestion. In brain and behavioural sciences, there is no dominant paradigm that one can uncritically defer to. There are conflicting schools, or even research groups. This is an exemplar pre-paradigm age of an emerging science. Thus everyone has to navigate the discipline for herself, and decide what she should believe and what she may neglect and even refute. The extent of this clash of ideas forces outsiders, like neurophilosophers, to be very critical of anything claimed in the relevant sciences, which results in a healthy degree of scepticism and a good amount of sophistication.

Another version of scientism states that morality, educational policy and political decisions can be effectively addressed only by science, particularly the natural sciences. I wish to immediately reject the last part of this statement. For the Churchlands, as noted above, social and human scientific studies are as important as the findings of the natural sciences. Given that Patricia Churchland's last three books are about the human mind and behaviour, including morality, free will, responsibility, agency and social organisation, it is easy to rule out that last part just by taking a quick look at these books, especially the most recent one (Churchland 2019). Demarcating the natural from the other sciences is itself futile. Is evolutionary biology a natural, a behavioural, or a social science? Recent studies take it to be all of them at the same time (Bowles 2006; 2009). What about psychology? Quine (1969) explicitly and repeatedly calls psychology "natural science". And yet David Spurrett (2009) shows how attempts to draw robust distinctions between natural and other sciences are bound to fail.

Are the Churchlands aware of the boundaries of science? Or is their faith in science limitless? These questions can only be answered after determining the ambit of science. Let us first look at what we already know. For the Churchlands, the soft sciences, commonly called, are science proper. Their conclusions may not be as reliable and exact as those of the physical sciences, but their findings are more directly predictive of human mind and behaviour, which makes these indispensable disciplines for neurophilosophical investigations. Is it possible that the critics mean that the Churchlands have no respect for the legitimate zones of religion or philosophy? If denying that religion produces any legitimate knowledge renders one scientistic, then I believe the Churchlands would see that as a badge of honour.

The issue is different with philosophy. Is philosophy autonomous or continuous with science, or with the rest of science? For the Churchlands, the Quinean continuity thesis is valid. Paul Churchland wrote an article "The continuity of philosophy and the sciences" (1986) which amounts to rejecting

the autonomy of philosophy. However, this is no more extreme than denying the autonomy of chemistry from physics, which never means that chemistry is illegitimate. Chemistry is a legitimate discipline, just as philosophy is. The lesson is that the continuity thesis is not a euphemism for the death of philosophy (cf. Floridi 2017). Then the continuity here rather implies an emergence relation in its scientific sense, not a reductionist one in the logical empiricist sense of it. Whether we could reasonably call the Churchlands eliminativist, as one of the anonymous reviewers of this article asked, is a matter of whether the continuity thesis implies a reductionist relation. Though I just said that the relation in this continuum is not a reductionist one, the answer is that it is perfectly reasonable to stop using the phrase "eliminative materialism" to cite the Churchlands' philosophy. The Churchlands would have no problem with that and stated that "revisionary materialism" would have been more accurate for citing their approach (Churchland 1988).

Quine (1957) also embraces the continuity of philosophy, common sense and science. Philosophy is continuous with the rest of science, and science itself is a refinement and continuation of common sense. The relationship between the scientific and the manifest image is conceived in a non-polarised continuum, but not in any scientistic manner that would result in scientific imperialism. Quinean naturalism is a stance, not a thesis or a project.

For Quine, science is the theory of the world, of whatever exists. It is not confined to the natural sciences. The continuity thesis was never meant to be a version of the unity of science thesis. Quine sees the latter as a dream of logical positivism. True, he endorses the idea that the traditional borders between philosophy (or even metaphysics) and science (or even natural science) should be blurred. However, he never intends to defend the idea that they blend into a single inquiry, which would have yielded an identity thesis or an eliminativist outlook. Quine (1975, 314) sees science as a considerably integrated system of the world: "Science is neither discontinuous nor monolithic. It is variously jointed, and loose in the joints in varying degrees". There could be real and important differences between philosophy and science, or between common sense and science, but these differences do not force a dichotomy. The negation of unity is not discontinuity, against which Quine argues.

Inasmuch as we see the principle of starting from the middle as the core of his naturalism, his continuity thesis becomes much more intelligible (see Verhaegh 2018). This principle has nothing to do with the radical idea that science and philosophy, or science and common sense, do or should utilise the same method or have the same level of systematicity.

The continuity thesis primarily says that there is no vantage point, no cosmic exile from which to obtain sound knowledge. The philosopher has nowhere to start from other than where the layperson or the scientist stands (Quine 1960). The thesis also implies that the roots of scientific inquiry could be found in laypeople's general way of thinking, despite the latter's much simpler ways of reasoning and basic measuring instruments (see Snow 1959). The scientist, the layperson and the philosopher each inherit the existing web of belief, upon which she modifies her web like Neurath's sailor, who has to reconstruct her ship on the ocean, but has no chance to start afresh from the bottom.

Following the Quinean continuity thesis, the Churchlands only deserve the label of scientism as a badge of honour. In its pejorative senses, "scientism" is not a feature of the Churchlands, excluding the possibility of some deeply covert forms of scientism. Nevertheless, should the reader wish me to say something negative about the Churchlands' attitudes toward science, I might have to issue the following warning. It must be acknowledged that recruiting concepts from the sciences is a risky business. Even in a Quinean world, which sees philosophy and the rest of science as neighbours, let us not forget that the harshest clashes routinely occur between bordering nations. I tend to accept that one of the primary reasons for these severe enmities is the presence of somewhat artificially constructed borders, given that many of the world's borders are not naturally emergent. With that being said, the conflict is real and cannot be dismissed by fiat. There are deeply entrenched disagreements and cultural discrepancies.

Some ridiculous but allegedly scientific ideas in naturalist philosophy have raised issues that have plagued it in recent years, including (i) poor knowledge of existing philosophical positions, (ii) being too trusting of sciences, (iii) underestimating science's potential to narrow philosophers' minds, and (iv) moving too quickly to recruit methods while not paying enough attention to potential

incompatibility risks and the familiar traps surrounding science. Race science and eugenics are well-known examples of bad science, or bad philosophy masquerading as science. This is a problem that historians may call "prioritising innovation over rigour". Trying to pass from the sentential notion of mind directly to its neurocomputational replacement might be unwise. There is always a trade-off between accounting for real-life situations and accounting for their simpler versions in more rigorous ways.

Self-refutation and unintelligibility

The objection from self-refutation, or from unintelligibility, is as old as eliminativism. Even Feyerabend argues against this objection.[3] For Feyerabend, folk psychology (FP) is theoretical in character. Claiming that it is not a theory implies that it is inaccessible to empirical criticism and cannot be enriched, let alone altered, by science (see Feyerabend 1963). Indeed, at the outset of the war between the proponents and the opponents of eliminativism, our traditional conception of the mental world was thought to be empirically irrefutable. A red line encircled it, and it had been pronounced a security zone. For any attempted empirical refutation, it was declared a forbidden area. Defenders of FP argue that its total elimination is meaningless and unintelligible, because this would be self-contradictory (Reppert 1991; Hannan 1993; Pitman 2003; Slagle 2020). This is what we saw in Aaron's (1952) attack on Young. Although Aaron's line of reasoning and Feyerabend's report of his opponents are at root the same, Feyerabend's way of putting the problem is more striking and illuminating:

> Let us consider meaninglessness first…It points out that the materialist, in stating his thesis, is violating them. Note that the particular *words* he uses are of no relevance here. Whatever the *words* employed by him, the resulting *system of rules* would have a structure incompatible with the structure of the idiom in which we usually describe pains and thoughts. This incompatibility is taken to refute the materialist (Feyerabend, 1963, 50; emphasis in original).

Meaninglessness creates unintelligibility through contradiction.

> It is evident that this argument is incomplete. An incompatibility between the materialistic language and the rules implicit in some other idiom will criticize the former only if the latter can be shown to possess certain advantages. Nor is it sufficient to point out that the idiom on which the comparison is based is in common use. This is an irrelevant historical accident (Feyerabend 1963, 50).

Considering established idioms of mentalistic language to be an irrelevant historical accident is very similar to Sellars's (1991) picture of the emergence of our self-conception. It might have been different, and it may well change in the future. Reformulating the eliminative case without using the word "belief" may not be so easy for now. But this is a problem of our current situation, not a conceptual or logical barrier to cross. Like Sellars (1991), Feyerabend (1963) intriguingly concludes his argument by stating that what he presents clears the path for the defence that a neuroscientific or a purely neurophysiological account of human beings is both a coherent and plausible idea. Beliefs, as commonly understood, are brain states which can be modelled as computational states. Either changing or sticking with the name of these brain states is not so important, but insisting on the name "belief" might create an illusion of self-contradictoriness.

For the Churchlands, this alleged self-contradictoriness is at most an example of a pragmatic paradox, while from a logical viewpoint it is solid and strong (Churchland 1998a). The resolution of a pragmatic paradox requires a conceptual change, or even a revolution in the framework embedding the relevant concepts. The more it seems paradoxical, the deeper and the farther reaching is the change in the framework.

A second reviewer correctly stated that "these can still be unavoidably self-referentially incoherent". However, this is only relevant when we insist on defining EM as a thesis in the

3 For a much more detailed analysis of this objection, see Tümkaya (2022a).

metaphysics of mind. When we step into the methodological level discussions concerning the relation between FP and scientific psychology, EM becomes a methodological call to free scientific psychology from FP's restrictive categories and principles (Mölder and Churchland 2015). As Dominic Murphy (2017) puts it, the real lesson of EM is that FP is not in charge in psychological and behavioural sciences.

The neurophilosophers acknowledge that there is no categorical distinction between the meanings of terms and the truth values of the sentences in which they appear (Quine 1951). This is again a Quinean idea, which involves rejecting the analytic–synthetic distinction. I will take on board Quine's rejection, and use it as a stepping stone to get rid of the seeming circularity. The established constraints will change concerning the placeholder for belief; and believing that sentential belief is untenable will become more tenable – by empirical strangulations, as Paul Churchland dramatically puts it. Or, as Quine (1961, 78) says: "We must not leap to the fatalistic conclusion that we are stuck with the conceptual scheme that we grew up in". Following Quine (1961, 78–79), neurophilosophers can change FP "bit by bit, plank by plank, though meanwhile there is nothing to carry themselves along but the evolving conceptual scheme itself". We cannot theorise without depending partially or fully on a conceptual scheme.

To improve FP, we do not have to and perhaps even cannot leave our current conceptual scheme in its entirety: "We can improve our conceptual scheme, our philosophy, bit by bit while continuing to depend on it for support" (Quine 1961, 79). Such circles are not vicious ones. If that were, then how could we even shift from one paradigm to its successor, which is typically an incommensurable competitor? Incommensurability is never meant to imply the full absence of common ground between the competing frameworks. It instead suggests that this common ground fails to provide full compatibility (Kuhn 1982). There is partial communication between rival theories, which makes transition possible. Otherwise, a rational comparison between them, even in a minimal sense, would be impossible to make.

It might be helpful to think of the distinction between EM and FP as analogous to the one between "water is wet and clear" and "water is H_2O". Both of these statements are true. Even though we only have direct experience of "water is wet and clear", we know from science that it is H_2O; the mind must be the activity of the brain, even if it does not seem that way to us. We use the FP model of what we see in the world as a convenience and no longer as a truth.

A less theoretical but simpler answer to the self-defeating objection comes from Paul Churchland. He puts the problem as follows:

> A more radical and purely a priori response to eliminative materialism dismisses it as simply incoherent, on grounds that in embracing or stating its case it must presuppose the integrity of the very framework it proposes to eliminate (Baker 1987; Boghossian 1990). Consider, for example, the evident conflict between the eliminativist's *apparent* belief that FP is false, and his simultaneous claim that there *are no* beliefs (Churchland 1998b, 9; emphasis in original).

Interestingly, he thinks that the obvious response is to concede the circularity while rejecting its suggested implication:

> A straightforward response concedes the real existence of this and many other conflicts, but denies that they signal anything wrong with the idea that FP might someday be replaced. Such conflicts signal only the depth and far-reaching nature of the conceptual change being proposed. Insofar, they are only to be expected, and they do nothing to mark FP as unreplaceable. Even if current FP were to permit no coherent denial of itself within its own theoretical vocabulary, a new psychological framework need have no such limitation where the denial of FP is concerned (Churchland 1998b, 9).

Arguments from self-refutation generally signal the incommensurability of the frameworks or paradigms. As Heidegger (1962) once said, from each paradigm's point of view, the basics of the opposing paradigm are self-defeating. Churchland (1998b, 9) asserts that the incoherence argument covertly begs the question. By doing so, it fallaciously favours current FP, which is "the very

framework being called into question".

The reader will immediately recall other responses based on analogous refutations, such as the fictional argument concerning vitalism, back when it struggled against metabolic chemistry and molecular biology. In a nutshell, suppose that two centuries ago, a proponent of vitalism accuses you of being incoherent in your denial of vital force. She says that if you were right, then you would have been dead, since what makes life is vital force, whose existence you deny. With the benefit of hindsight, we immediately see the absurdity of this argument. Many articles have purported to demonstrate the difference between this fictional story and rejecting eliminativism through objections from self-refutation. Churchland finds all these arguments wanting and even irrelevant.

Philip Frank, a physicist member of the Vienna Circle, argues – by appeal to many actual examples from the history of science – that the intelligibility of a theory is a dynamic issue. Many newly emerging theories were judged to be unintelligible before being vindicated (Frank 1974). All this may seem soothing for the naturalist philosopher. However, the critics rightly do not accept this meta-level consideration. They demand a concrete alternative language to coherently express the lesson of eliminativism. I have no intention of convincing the sceptical reader that there is an easy way out. I am just saying that we have not yet hit a dead end.

It is perfectly acceptable to retain the old terms in metaphorical poetry. For example, we no longer believe that people are sad because they have black bile circulating, but we still say they are melancholic. Some problems that are addressed are solved. Others, in philosophy, are addressed, but instead of being solved, they are dissolved: not explained but explained away. Primarily, this is true when the outcome is the elimination of the old theory and its entities. The disappearance of demons, ether, caloric, phlogiston and the like are well-known examples of eliminative outcomes of scientific change in history. It is meaningless to insist on asking for physical, chemical, or biological accounts of these entities. Any possible natural explanations of them become nonsensical as they are eliminated from our scientific vocabulary. Did we change the topic to avoid confronting some very elusive problem? No, that is not the case. We did not escape from solving a problem, rather the problem itself has been transformed.

If eliminativism turns out to be accurate, then we will try to solve a transformed problem. The explanandum never remains the same, and there may emerge unexpected explanans. When could we become convinced that the old problem has become archaic, and that it is legitimate to drop it altogether? This is an essentially practical issue, although Rorty (1965), over many pages, tries to specify the conditions when philosophers or laypeople will drop or keep the old terms. Dropping the old terms creates serious inconveniences. To overcome these inconveniences, the advantages of shifting to the new problem and its proposed solution should clearly exceed them. It is like a Kuhnian paradigm shift. Only when the elderly proponents of a paradigm die, does it become possible for the emerging paradigm to obtain a monopoly (Kuhn 1970).

The case of *water* might provide an excellent instance to see what kind of scientific change awaits FP. It is clear that neither the reference nor the meaning of *water* is the same across the manifest and scientific images. We did not drop the term *water*, although we discovered its molecular structure. In some disciplines, the usage of the term *water* significantly departs from the way laypeople use it. However, this discrepancy never results in us dropping the word *water* from our daily interactions. Almost all scientific disciplines can use this word in their everyday work. Nonetheless, quite a few disciplines redefine the term to fit their needs and make the term fully compatible with what they know about the microstructure and functioning of what they call *water*. What makes possible all this plurality of meaning is the sufficient common ground between the manifest and scientific images of *water*.

If FP displays a similar level of common ground with its scientific alternative, or dropping it proves to result in enormous inconvenience, then its elimination becomes less likely. Even in this case, the meaning of the old mentalistic terms will have been substantially modified (see Rockwell 2011).

Futurism

In this context, futurism refers to a philosophical movement that arose in the US in 1981 to replace

our traditional self-conception with a far-future, neurocomputational, cognitive scientific conception of mind and the like. In some far, far away future, people are thought to communicate and cooperate in the language of molecules and biophysical processes (see Searle 1992). Is this merely a caricature of what the Churchlands have defended for half a century? As a futuristic exercise, they enjoy this possibility (Crooks 2008). Is it really possible, though? Any more possible than being merely possible? Here is a quick and clear answer from the first eliminativist:

> The inconvenience of ceasing to talk about sensations would be so great that only a fanatical materialist would think it worth the trouble to cease referring to sensations. If the Identity Theorist is taken to be predicting that some day "sensation", "pain", "mental image", and the like will drop out of our vocabulary, he is almost certainly wrong. But if he is saying simply that, at no greater cost than an inconvenient linguistic reform, we could drop such terms, he is entirely justified. And I take this latter claim to be all that traditional materialism has ever desired (Rorty 1965, 37).

Rorty is exempted from any allegation of futurism, if it is even an allegation. His concern is to demonstrate the coherence of the eliminative outcome. What about the Churchlands? Is it hard to give a final answer to this question? Some parts of their writings lead us to think that they see the practicality of shifting to a molecular language as a vivid possibility. There are other writings, however, in which they speak much more cautiously, leaning toward the impracticality of this language, at least in daily intercourse. Apart from the final destination, the transition itself seems hard to initiate, say the critics. Fair warning: I am not going to offer any good answer to the question of transition. The point of the present discussion is, instead, to argue for the question's importance.

I am not sure I accept the critics' concerns about the transition. Nobody would advocate that tomorrow all FP discourse closes shop, and we try to immediately engage in a new range of scientific discourse based on brain science. Presumably, the starting point will be as Thomas Kuhn pictured it regarding the relatively random shifts in the allegiances of young philosophers. They will initially hesitatingly exercise the new vocabulary. Some, or many of them, will return to their old positions and habits. Others will get used to the new vocabulary and internalise it. Surely the old philosophers will continue, and we will see how FP all plays out in the long run. The real issue is that we should think about experimenting and setting up these new sorts of discourse. When some serious philosophers with clout take them seriously, and push them as legitimate models of natural communication, then the new discourses will have a chance to spread through the broader circles of philosophy. A neurocomputational alternative to FP is not yet compelling, but it is at least a discernible prospect. It is certainly not quixotic. Nonetheless, if anyone still thinks that eliminativism is an exercise in futurism, then so be it. It is also logically possible that just as we still use "water" and "wet" and "fire" and "hot", so we will not switch over, ever, to using "dihydrogen monoxide", "low surface tension", "fluorescing carbon dioxide", and "high-rate thermal transfer" as the correct alternatives.

Neuroscience exceptionalism: Exaggeration and the dangerous enthusiasm

Predilection, prejudice and bias, but not exceptionalism, are acceptable ways to describe the priority the Churchlands give to the brain sciences, including neurocomputational cognitive science (cf. Gold and Stoljar 1999). However, from even a quick look at their publications, one would see how many different behavioural and social sciences are cited to advance neurophilosophical ideas: anthropology, psychology, sociology, history, political science, archaeology, primatology, ethology, experimental psychology, behavioural genetics, linguistics and economics (Churchland 2011; 2013). Moreover, cognitive science itself is not a paradigmatic biological science. Although they are neurally inspired (Churchland and Sejnowski 1990), connectionist models are, at the end of the day, highly abstract and symbolic tools (Smolensky 1988) – at least, as of now (see Churchland 2012). A systematic review of the references cited in their writings would reveal that only a fraction of them are directly from the brain sciences. Moreover, prioritising an accurate demonstrable science is appropriate. Pejorative terms like "undue prioritisation" are a bit like saying "obnoxiously favouring truth". We should want to favour truth.

Most purveyors of this criticism never use social scientific or human scientific references in their publications. I think this criticism is due to a severe ignorance of how actual science works. The dependency among adjacent sciences is strong. Given that the Churchlands philosophise about the human mind, behaviour and institutions such as morality, it would be unwise to guess that they would mostly draw from brain scientific sources to illuminate the problems they address, given that brain science is a recent phenomenon (see Churchland 2008).

Patricia Churchland's engagement with neuroscience is deep and extensive, which makes her an unusual figure in philosophy. Her engagement with brain science has nothing to do with any blinding enthusiasm. On the contrary, she is so cautious that she decided to learn neuroscience, recognising that this was the first time that neuroscience had ever landed on analytic philosophical soil, a fact that should have us all very concerned, because whatever the future holds, this is only the very beginning. She anticipates what approaches to take, and positions herself to get the most from it.

All leading naturalist philosophers have used science in their philosophies, but Patricia Churchland's use of science far exceeds that of any other naturalist philosopher, including Quine. She has been outspoken about amplifying science's voice in the philosophy of mind, but she has also been put through the wringer in the publications of leading philosophers of mind.

Most such philosophers have been fulsome in their criticism of the Churchlands. However, neurophilosophy is not the grim reaper of philosophy. Patricia Churchland has never trodden gingerly through the forest of philosophical resentment. In large part thanks to Patricia and Paul Churchland, current philosophy of mind is far different from the one they decided to upend when they started neurophilosophy in the mid-1980s. The fate of neurophilosophy might not turn out quite as the Churchlands hope. Having tried to wage a campaign about the shortcomings of FP and traditional philosophy, the Churchlands might, in the near future, need to focus on the shortcomings of their neurophilosophy as well. That is not bad news for them.

Neurophilosophy is a hyper-version of naturalism. This philosophy is truly down-to-earth. As its founders, the Churchlands look forward to resuming the science–philosophy conversation in an amplified manner. Naturalism's reputation in recent analytic philosophy is intriguing: "Quine [is] implicitly committing himself to the naturalist assumption that there is nothing to know except the truths of empirical science" (Gutting 2009, 29). Gutting's remark is not neutral, and suggests that Quine's naturalism is scientistic. Gutting is not alone in his accusations. Susan Haack (2016, 230–232) defines three levels of commitment to naturalism: a most modest form, a more ambitious one, and the most ambitious one. Elsewhere, as we learn from her note in the same paper, she names these three levels "reformist aposteriorist naturalism", "reformist scientistic naturalism" and "revolutionary scientistic naturalism". The last one corresponds to the most ambitious form of naturalism, and among its defenders are the Churchlands (Haack 2016). But is the following idea truly scientistic?

> Neurophilosophy arises out of the recognition that at long last, the brain sciences and their adjunct technology are sufficiently advanced that real progress can be made in understanding the mind-brain…it predicts that philosophy of mind conducted with no understanding of neurons and the brain is likely to be sterile. Neurophilosophy, as a result, focuses on problems at the intersection of a greening neuroscience and a graying philosophy (Churchland 2002, 2–3).

Patricia Churchland here simply advocates that philosophy should be greying, not that it should be whitening. The Churchlands celebrate the fact that there are some problems in philosophy that are amenable to neurobiology–philosophy cooperation. In time, philosophers will view with astonishment the idea that most philosophers of mind once theorised without any knowledge of neuroscience.

It is true that neurophilosophy may not arrive with a disarming smile. Indeed, the Churchlands' enthusiasm, at worst, can have unintended adverse consequences (cf. Bickle 2019). Their love of neuroscience may have blinded them. It might be thought that their enthusiasm, which seems

boundless, is at risk of overthrowing some much-needed caution. Exciting as it is, it might truly mislead. However, Patricia Churchland may be brave and daring, but she is never foolishly reckless.

Some philosophers mistakenly believe that the Churchlands urge philosophers of mind to leapfrog from the last century's conception of mind and self to a purely neurobiological one (Gold and Stoljar 1999; Seager 2017). This belief is not even remotely true. Nor do the Churchlands regard neuroscience as a magic bullet against each and every failure of our self-conception. They are not trapped in "neuroscience exceptionalism". The Churchlands are under no illusion about the sciences of the brain that we live by. Neuroscience is neither the queen of the sciences nor fully mature, but it is truly exciting (P. S. Churchland 1986). It is still in its infancy with regard to higher-level cognition. This is why it is not today's neuroscience but future cognitive neuroscience that is the candidate eliminating theory. The Churchlands passionately believe that the best days of cognitive neurobiology lie ahead of us. Hence an exciting future lies ahead for philosophers of mind.

Another worry about neuroscience exceptionalism would probably concern the status of scientific psychology. Does it imply the disappearance of psychology? The answer is an emphatic no. I quote the last passage of an article on inter-theoretic reduction by the Churchlands:

> ...it should not be assumed that the science of psychology will somehow disappear in the process, nor that its role will be limited to that of a passive target of neural explanation. On the contrary, chemistry has not disappeared despite the quantum-mechanical explication of its basics; nor has the science of biology disappeared, despite the chemical explication of its basics. And each of these higher-level sciences has helped to shape profoundly the development and articulation of its underlying science. It will surely be the same with psychology and neuroscience. At this level of complexity, inter-theoretic reduction does not appear as the sudden takeover of one discipline by another; it more closely resembles a long and slowly maturing marriage (Churchland and Churchland 1998, 29).

The reduction will be long and arduous; the precise outcome cannot be anticipated. The message of this passage is not the conclusion. It also notes that reduced disciplines have "helped to shape the development and articulation" of the reducing science profoundly. They are not passive targets of their underlying sciences. Hence, a "future unified cognitive social neuroscience". Concrete examples from the history of chemistry and biology provide compelling instances.

Suppose the brain sciences constantly and largely fail to reduce psychology in the long run. In that case, our genuine inability to construct a neural-level account of psychological processes reflects not the poverty of neuroscience, but rather the poverty of our then-current psychology as an explication of how our cognition relates to the world. The Churchlands give primacy to active coherence between relevant sciences. Irreducibility may imply incompatibility, which in turn suggests that macro-level science bodes ill. However, the reader should never forget that reduction is here a thin concept, to the point of superficiality. It is, in the main, neurobiological addressability.

There is another dimension to this neuroscience exceptionalism objection: reductionism. Here are some other aspects of the problem. In passing, I have said that the Churchlands never ignore the importance of social, historical, or cultural factors in determining human behaviour and cognition. Qualia and intentionality are more technical features of the reductionism problem. However, the macro-level, institutional influences on behaviour and cognition are details that everyone agrees on. Despite this, the critics assume that neurophilosophers are confined to studying only the microscopic processes in an individual's brain (e.g. Barrett 2011). First, the Churchlands repeatedly acknowledge that cultural factors have an enormous influence on cognition. Second, whether bottom-up research is unlikely to cooperate with macro-level social studies or not remains to be seen:

> The proper response to this objection is to embrace it. Human behaviour is indeed a function of the factors cited. And the character of any individual human consciousness will be profoundly shaped by the culture in which it develops. What this means is that any adequate neuro-computational account of human consciousness must take into account the manner in which a brain comes to represent, not just the gross features of the physical world, but also the character of the other cognitive creatures with which it interacts, and the details of the

> social, moral, and political world in which they all live (Churchland and Churchland 1998, 26).

The response is simple: they embrace the objection. Notice that they do not even attempt to mount a principled defence, such as saying that all social and cultural influences could be explained at a biological level in the distant future. Aside from adding these insults to the injury, the Churchlands have no interest, not even a superficial one, in reducing cognition and behaviour to fundamental physics or low-level chemistry. It is too vague to say that. Given that everything exists due to fundamental physical interactions, however, it can be achieved in principle. Social or cultural structures and historical patterns are emergent phenomena and might not be suited to reduction to fundamental-level physics or chemistry, although human behaviours arguably emerge from low-level biophysical and neurochemical interactions.

In any case, this is pattern recognition, involving physical and social patterns that are astonishingly subtle. Advanced neural networks have the potential to respond to such subtle physical patterns, so why, say the Churchlands, would it be impossible to construct artificial neural networks with the capacity to recognise and respond to very complicated social patterns? Their answer is entirely plausible: "We confront no problem in principle here. Only a major challenge" (Churchland and Churchland 1998, 27). The enormous complexity of neural systems and the limits of our current mathematic and computational power may be serious obstacles to developing complete reductions. These are technical problems that may preclude a desired ideal account. Calling them technical, however, does not mean that they will definitely be solved in the future. No, this may remain technically impractical forever. The Churchlands concede all of this.

Exaggeration and dangerous enthusiasm is an old but perennial accusation, which may contain a grain of truth. For my part, I can accept it a little bit when I contemplate Patricia Churchland's uncritical reception of the findings of behavioural genetics. In any case, I do not think that either she or Paul Churchland is any more prone to exaggeration than other naturalist philosophers who draw from the empirical sciences. Even non-naturalist analytic philosophers routinely utilise evolutionary psychological findings, which are much more speculative than behavioural genetics.

Moreover, for other philosophers, let me say this bold thing. Mainstream philosophers trust their intuitions as if somebody from above has given them some superhuman powers to grasp the truth of concepts immediately. Compared with this exaggerated self-confidence, Patricia Churchland's exaggeration of the power of the brain sciences to solve, dissolve, or illuminate age-old philosophical problems does not seem to represent an undue level of enthusiasm.

The Churchlands' infamous enthusiasm is well balanced with caution. Nonetheless, Patricia Churchland in particular believes that extra skills may be needed to cope with new philosophical progress. She has already taken steps to train herself to catch up; but this is part of her caution, not a product of her enthusiasm. Philosophers have learned many things and honed their skills as time passed. A century ago, we were told to learn the then-newly emerging symbolic logic. This was not a product of dangerous enthusiasm, but rather an outcome of careful consideration on many fronts. In the middle of the last century, many philosophers were convinced that they should become students of dictionaries. They honed their skills in navigating the labyrinths of ordinary language. Today, some leading figures want us to be experimental philosophers, which may require quite a bit of statistics. I welcome all of this. I make choices as to what innovation I should accept.

Is it still philosophy or some replacement for it?

Yes, of course, it is philosophy, or something close to it, by any measure. Saying otherwise would immediately expel most current mainstream philosophy of science and history of philosophy from philosophy proper. That conclusion would be absurd. Neurophilosophy papers are widely published even in leading mainstream analytic philosophy journals. Even quasi-technical papers written by philosophers benefiting from network-style artificial intelligence are not uncommon in peer-reviewed philosophical venues. Recently, complex figures, multiple tables and graphics can be seen in analytic journals, like those that have always been found in scientific journals.

I am not ignoring the fact that, at least among older generations of senior philosophers, these developments are still not seen as a blessing in disguise. They might tolerate these developments, but they will probably always see younger generations of naturalist philosophers as barking up the wrong tree. This clash is not unprecedented in the recent history of philosophy. A century ago, young philosophers were urged to learn formal logic and apply it to some venerable philosophical problems. Some learned, while some others ignored it. Then we were encouraged to learn the details of a particular language, namely contemporary ordinary English, to solve the perennial questions of philosophy. I might even add that some strands of continental philosophy implicitly advise their members to keep updated concerning literature, art, culture and social and political developments. Just as an utterly speculative sort of fiction, we could imagine a global philosophy, whose leading figures assume its members to routinely meditate on spiritual matters.

Conclusion

This articlehas been a general evaluation of eliminativism's overall success in rebutting the major objections to it.[4] My answer is that it survives most of them *intact*. However, concerning a few objections, it remains to be seen whether eliminativism should embrace them or not. Given that the neurocomputational successor of the propositional mind is quite underdeveloped with regard to higher-level cognition which seems to be the major concern of philosophers, why should the bulk of mainstream philosophers try this new but profoundly alien sort of philosophising? Perhaps this worry is a non-issue. The Kuhnian image of science might even have already solved this problem and there is no need to convince the current bulk of mainstream philosophers. Let us wait and see whether the natural development of naturalistic philosophy of mind will sort out this "the only game in town" dispute.

Author note

This paper is based on the seventh chapter of my Ph.D. dissertation.

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References

Barrett, L. 2011. *Beyond the Brain: How Body and Environment Shape Animal and Human Minds*. Princeton: Princeton University Press.

Bickle, J. 2019. "Lessons for experimental philosophy from the rise and 'fall' of neurophilosophy." *Philosophical Psychology* 32(1): 1–22. https://doi.org/10.1080/09515089.2018.1512705

Bowles, S. 2006. "Group competition, reproductive leveling, and the evolution of human altruism." *Science* 314(5805): 1569–1572. https://doi.org/10.1126/science.1134829

Bowles, S. 2009. "Did warfare among ancestral hunter-gatherers affect the evolution of human social behaviors?" *Science* 324(5932): 1293–1298. https://doi.org/10.1126/science.1168112

Churchland, P. M. 1986. "The continuity of philosophy and the sciences." *Mind & Language* 1(1): 5–14. https://doi.org/10.1111/j.1468-0017.1986.tb00088.x

Churchland, P. M. 1998a. "Evaluating our self-conception." In: *On the contrary: critical essays, 1987–1997*, 25–38. Cambridge, Massachusetts: MIT Press.

Churchland, P. M. 1998b. "Folk psychology." In: *On the contrary: critical essays, 1987–1997*, 3–15. Cambridge, Massachusetts: MIT Press.

Churchland, P. M. 2012. *Plato's camera: how the physical brain captures a landscape of abstract universals*. Cambridge, Massachusetts: MIT Press. https://doi.org/10.7551/mitpress/9116.001.0001

Churchland, P. S. 1986. *Neurophilosophy: toward a unified science of the mind-brain*. Cambridge, Massachusetts: MIT Press.

4 For a comprehensive inquiry into EM, see Tümkaya (2022b).

Churchland, P. S. 1988. “Replies.” *Biology and Philosophy* 3(3): 393–402. https://doi.org/10.1007/BF00053662
Churchland, P. S. 2002. *Brain-wise: studies in neurophilosophy*. Cambridge, Massachusetts: MIT Press.
Churchland, P. S. 2008. “The impact of neuroscience on philosophy.” *Neuron* 60(3): 409–411. https://doi.org/10.1016/j.neuron.2008.10.023
Churchland, P. S. 2011. *Braintrust: What neuroscience tells us about morality*. Princeton: Princeton University Press. https://doi.org/10.1515/9781400838080
Churchland, P. S. 2013. *Touching a nerve: The self as brain*. New York: W. W. Norton & Company.
Churchland, P. S. 2019. *The Origins of Moral Intuitions*. New York: Norton.
Churchland, P. M., and P. S. Churchland. 1978. “The virtuosity of the sensory cortex and the perils of common sense.” *Behavioral and Brain Sciences* 1(3): 350–351. https://doi.org/10.1017/S0140525X00075208
Churchland, P. M., and P. S. Churchland. 1998. “Intertheoretic reduction: A neuroscientist’s field guide.” In: *Neurophilosophy and Alzheimer’s Disease*, edited by Y. Christen and P. Churchland, 18–29. Berlin: Springer Verlag.
Churchland, P. S., and T. J. Sejnowski. 1990. “Neural representation and neural computation.” *Philosophical Perspectives* 4: 343–382. https://doi.org/10.2307/2214198
Crooks, M. 2008. “The Churchlands’ war on qualia.” In: *The Case for Qualia*, edited by E. Wright, 203–221. Cambridge, Massachusetts: MIT Press. https://doi.org/10.7551/mitpress/9780262232661.003.0012
De Caro, M., and D. Macarthur, eds. 2004. *Naturalism in Question*. Cambridge, Massachusetts: Harvard University Press.
Feyerabend, P. K. 1963. “Materialism and the mind-body problem.” *The Review of Metaphysics* 17(1): 49–66.
Floridi, L. 2017. “A plea for non-naturalism as constructionism.” *Minds and Machines* 27(2): 269–285. https://doi.org/10.1007/s11023-017-9422-9
Frank, P. 1974. *Philosophy of Science: The Link Between Science and Philosophy*. Westport: Greenwood Press Publishers.
Gold, I., and D. Stoljar. 1999. “A neuron doctrine in the philosophy of neuroscience.” *Behavioral and Brain Sciences* 22(5): 809–830. https://doi.org/10.1017/S0140525X99002198
Gould, S. J. 1999. *Rocks of Ages: Science and Religion in the Fullness of Life*. New York: Ballantine Pub. Group.
Gutting, G. 2009. *What Philosophers Know. Case Studies in Recent Analytic Philosophy*. New York: Cambridge University Press. https://doi.org/10.1017/CBO9780511841156
Haack, S. 2016. “Belief in naturalism: An epistemologist’s philosophy of mind.” In: *The Normative Mindi*, edited by J. Stelmach, B. Brozek, and L. Kwiatek, 229–249. Kraków: Copernicus Center Press.
Hannan, B. 1993. “Don’t stop believing: The case against eliminative materialism.” *Mind & Language* 8(2): 165–178. https://doi.org/10.1111/j.1468-0017.1993.tb00277.x
Heidegger, M. 1962. *Being and Time*. Trans. J. Macquarrie and E. Robinson. Cambridge, Massassachusetts: Blackwell.
Kornblith, H. 2018. “Philosophy, science, and common sense.” In: *Scientism: Prospects and Problems*, edited by J. de Ridder, R. Peels, and R. van Woudenberg, 127–148. New York: Oxford University Press.
Kuhn, T. 1970. *The Structure of Scientific Revolutions* (2nd edn). Chicago: The University of Chicago Press.
Kuhn, T. 1982. “Commensurability, comparability, communicability.” *Proceedings of the Biennial Meeting of the Philosophy of Science Association, Volume Two: Symposia and Invited Papers*: 669–688.

Ladyman, J. 2018. "Scientism with a human face." In: *Scientism: Prospects and Problems*, edited by J. de Ridder, R. Peels, and R. van Woudenberg, 106–126. New York: Oxford University Press.
Leahey, T. H. 2005. "Mind as a scientific object: A historical- philosophical exploration." In: *The Mind as a Scientific Object: Between Brain and Culture*, edited by C. E. Erneling and D. M. Johnson, 35–78. New York: Oxford University Press.
Mölder, B., and P. S. Churchland. 2015. "Neuroscience is relevant for philosophy." *Problemos* 88: 176–186. https://doi.org/10.15388/Problemos.2015.88.8487
Murphy, D. 2017. "Can psychiatry refurnish the mind?" *Philosophical Explorations* 20(2): 160–174. https://doi.org/10.1080/13869795.2017.1312499
Pitman, M. M. 2003. "Eliminative materialism and the integrity of science." *South African Journal of Philosophy* 22(3): 207–219. https://doi.org/10.4314/sajpem.v22i3.31370
Putnam, H. 2010. "Science and philosophy." In: *Naturalism and Normativity*, edited by M. de Caro and D. Macarthur, 88–99. New York: Columbia University Press.
Quine, W. V. O. 1951. "Main trends in recent philosophy: Two dogmas of empiricism." *Philosophical Review* 60(1): 20–43. https://doi.org/10.2307/2181906
Quine, W. V. O. 1957. "The scope and language of science." *The British Journal for the Philosophy of Science* 8(29): 1–17. https://doi.org/10.1093/bjps/VIII.29.1
Quine, W. V. O. 1960. *Word and Object*. Cambridge, Massachusetts: MIT Press.
Quine, W. V. O. 1961. *From a Logical Point of View: 9 Logico-philosophical Essays* (2nd edn). New York: Harper & Row.
Quine, W. V. O. 1969. *Ontological Relativity and Other Essays*. New York: Columbia University Press. https://doi.org/10.7312/quin92204-004
Quine, W. V. O. 1975. "On empirically equivalent systems of the world." *Erkenntnis* 9: 313–328.
Reppert, V. 1991. "Ramsey on eliminativism and self-refutation." *Inquiry (United Kingdom)* 34(4): 499–508. https://doi.org/10.1080/00201749108602272
Rockwell, W. T. 2011. "Beyond eliminative materialism: Some unnoticed implications of Churchland's pragmatic pluralism." *Contemporary Pragmatism* 8(1): 173–189. https://doi.org/10.1163/18758185-90000189
Rorty, R. 1965. "Mind-body identity, privacy, and categories." *The Review of Metaphysics* 19(1): 24–54. http://www.jstor.org/stable/20124096
Seager, W. 2017. "Could consciousness be an illusion?" *Mind and Matter* 15(1): 7–28.
Searle, J. R. 1992. *The Rediscovery of the Mind*. Cambridge, Massachusetts: MIT Press. https://doi.org/10.7551/mitpress/5834.001.0001
Sellars, W. 1991. "Philosophy and the scientific image of man." In: *Science, Perception, and Reality*, 1–40. London: Ridgeview Publishing.
Slagle, J. 2020. "Yes, eliminative materialism is self-defeating." *Philosophical Investigations* 43(3): 199–213. https://doi.org/10.1111/phin.12252
Smolensky, P. 1988. "On the proper treatment of connectionism." *Behavioral and Brain Sciences* 11(1): 1–23. https://doi.org/10.1017/S0140525X00052432
Snow, C. P. 1959. *The Two Cultures*. Cambridge: Cambridge University Press.
Spurrett, D. 2009. "Inaugural lecture: Philosophy enough." *South African Journal of Philosophy* 28(1): 43–64. https://doi.org/10.4314/sajpem.v28i1.42905
Trout, J. D. 1991. "Belief attribution in science: Folk psychology under theoretical stress." *Synthese* 87(3): 379–400. https://doi.org/10.1007/BF00499818
Tümkaya, S. 2022a. "Against Slagle's reading of eliminative materialism on self-defeating." *Philosophical Investigations* 46(1): 99–111. https://doi.org/10.1111/phin.12351
Tümkaya, S. 2022b. "The united shades of eliminative materialism." *The Philosophical Forum* 53(2): 95–113. https://doi.org/10.1111/phil.12310
Verhaegh, S. 2018. *Working from Within: The Nature and Development of Quine's Naturalism*. New York: Oxford University Press.

Received 19 November 2021; revised 10 March 2023; accepted 21 March 2023