The metaphysical poverty
of naturalism

Stephen Priest's work bridges two traditions that are often thought to be
unbridgeable, fusing analytic and Continental philosophy in a way that is (to my
mind) unique. Continental philosophers tend to study the enigma of subjectivity
—their heroes are people like Kierkegaard, Nietzsche, Husserl, Heidegger, and
Merleau-Ponty, who turned away from 19th-century post-Hegelian metaphysics
to uncover distinctly human dimensions of existence that had been probed, if at
all, by the arts only. On the other hand, analytic philosophy, since the resurgence
of metaphysical realism in the 1970s, has focused on the metaphysics of the
mind-independent world, adapting it to the needs of 20th century science. In my
view, Stephen has effected a genuine *Aufhebung* of these two traditions,
combining their strengths while steering clear of their less appealing tendencies
(which include speaking in tongues in one case, and compulsive nitpicking in the
other).

    One of the core themes in Stephen's work is that some real (and highly
important) phenomena are missing from the scientific worldview, which struggles
to find conceptual surrogates for them, and, failing to do so, pretends that they
don't exist. "The growth of science entails the suppression of presence", he
writes. "For all its admirable rigor, its detached observations, its careful reporting,
its mathematical modeling and predictive power, science is limited by a
catastrophic mistake: *Science construes its subject matter as only other*. In
understandably adhering to objective *methods,* science has excluded the study of
subjective *subject matter*" (Priest 2012: 298, 296f).

I would like to illustrate this point in the area of metaphysical cognition. Very roughly, my claim will be that our ability to grasp metaphysical truth lacks a scientific explanation—even though such an ability is presupposed by scientific realism.

Call "naturalism" the principle that science is our best guide to fundamental reality. (I will offer a more precise characterization in a moment.) In a slogan, my thesis is that true metaphysical belief cannot be naturalized—facts of the form "*S* truly believes that *M*", where *M* is some metaphysical claim, have no naturalistic interpretation. I take it that this conclusion, if correct, creates a serious problem for the naturalist. In order to think of herself as advocating truth, the naturalist must believe that at least one purportedly natural fact (namely, her own true belief in naturalism) falls outside the naturalistic picture. The substantive issue that my *reductio* purports to uncover is that naturalism is unable to individuate mind-world relations in the realm of the metaphysical.

I take naturalism to consist of a metaphysical thesis and an epistemological thesis. The metaphysical thesis is that all concrete entities are physical and all their properties are physical. The epistemological thesis is that natural science can, in principle, reveal the real structure of physical world.

Some naturalists uphold the metaphysical thesis while denying the epistemological one. One can do this in two ways. First, one can maintain that some parts of nature are bound to remain unintelligible for us, even though everything is physical. Alternatively, one can claim that science is our sole guide to source of metaphysical truth. I'll discuss these softer views at the end.

I emphasize that naturalism, on the present understanding, does not involve reduction of any sort, neither the analytic reduction of mental concepts to

behavioural or functional ones, nor the reduction of macrolevel entities to microscopic ones. A naturalist takes natural science to uncover the real structure of worldly phenomena. Whether the resulting models exhaust the meaning of human concepts and whether they all belong, ultimately, to physics, is orthogonal to the present dialectic.

1 Structure-revealing sentences

A structure-revealing sentence carves nature at its joints, disclosing the real structure of concrete phenomena. For example, if physicalism is true, then "Fred's C-fibers are firing" reveals the real structure of the phenomenon referred to by "Fred is in pain".[1]

For lack of space, I will not try to define structure.[2] The core idea is, I hope, fairly intuitive. Reality is organized in a certain way and our sentences can latch on, at various degrees of accuracy, to the way it's organized. Whenever we get things right (in science, metaphysics, or anywhere), the linguistic expression of what we got right describes structures that are present in the world. For example, Fred's being in pain, on a physicalistic understanding of human persons, consists in changes in action potentials along bundles of neural pathways. So the sentence

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[1]   Throughout the paper, "sentence" refers to interpreted closed formulas. I am officially neutral between broadly Fregean and broadly Russellian conceptions of sentences. On a broadly Fregean conception, sentences express thoughts, which, in turn, are composed of senses. On a broadly Russellian conception, sentences express propositions, which are mind-independent facts or set-theoretic constructions from objects. The debate between these conceptions and the attendant complications (such as whether "Fred is in pain" and "Fred's C-fibers are firing" have the same content) are not relevant here.

[2]   The background picture is broadly Tractarian. For a systematic outline of such a view, see Armstrong (1997). For a general account of metaphysics as a quest for real structure, see Sider (2011).

"Fred's C-fibers are firing" reveals the real structure of Fred's pain if physicalism is true.

Being structure-revealing (SR) is a matter of degree. A detailed, cell-by-cell description of Fred's C-fibers would reveal the structure of Fred's pain (on a physicalist understanding of pain) more accurately than "Fred's C-fibers are firing". Some sentences carve nature at the joints better than others, and some may carve at the joints perfectly. Then again, perhaps no sentence is perfectly joint-carving and we can only hope for progressively more refined approximations of concrete reality.

Some sentences were meant to be SR but are not in fact SR. For example, "Flogiston escaped during the fire" is a candidate SR sentence that is now known not to be SR. It is based on a false theory; the structures that it purports to reveal just aren't there. In many cases, it is fairly uncontroversial whether a candidate SR sentence is indeed SR. In other cases, it is a thorny issue. It is an open question, for example, whether "Fred's C-fibers are firing" is SR. More precisely, it is unknown whether "Fred's C-fibers are firing" reveals the real structure of Fred's felt pain. (It is fairly uncontroversial that "Fred's C-fibers are firing" is SR within neuroscience, revealing the structure of the biochemical phenomenon that accompanies Fred's pain.)

Candidate SR sentences are based on theories that may or may not be true. For example, "Flogiston escaped during the fire" is based on a failed theory while "Fred's C-fibers are firing" is (apparently) based on a correct one.

Naturalizing x means constructing a scientific SR sentence that describes x. For example, one naturalizes Fred pain when one describes it as "Fred's C-fibers are firing". Generally, if S is a true sentence, then naturalising the phenomenon

that *S* describes means constructing a true SR sentence *t*(*S*) using some scientific theory *T* such that *t*(*S*) and *S* co-refer.

2 Scientific vs metaphysical structure

Metaphysics operates at a higher level of generality than science. While scientists investigate the properties of natural kinds, metaphysicians wonder what a property or natural kind *is*. And the theories they come up with to answer such questions purport to reveal some extra structure over and above the structures revealed by science. For example, the bundle theory of substance (the idea that concrete particulars are bundles of properties) reveals some extra structure over and above the structures revealed by neuroscience. It implies that C-fibers are in fact bundles of properties. Any sentence that contains the term "C-fiber" can be turned into a sentence that does not contain "C-fiber" but contains a purportedly co-referring term describing a property bundle. The resulting candidate metaphysical SR sentence, generated from a neuroscientific SR sentence, purports to reveal some extra structure over and above biochemical structure.

In most areas of metaphysics, one finds competing theories that give rise to rival candidate SR sentences when applied to scientific claims. Think of rival conceptions of causation and lawhood, spacetime, chance and probability, and so on. Not all of metaphysics is concerned with fine-graining scientific discourse, of course. But much of it is.

The fact that metaphysics purports to reveal extra structure beyond the structure revealed by natural science can be formalized using nested operators. Let *S* be the sentence "Fred is in pain", and let *n*(*S*) be the corresponding neuroscientific SR sentence, say "Fred's C-fibers are firing". Bundle theory then

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supplies $b(n(S))$, a sentence that describes the firing of Fred's C-fibers as the interaction of property bundles.

Note, further, that for any given structure-revealing sentence $t(S)$ that is based on some actual scientific theory T, there are metaphysical theories X and Y such that $x(n(S))$ and $y(n(S))$ are logically contradictory, because X and Y are metaphysical rivals. Competing theories of substance, causation, natural kinds, temporal passage, space etc. all give rise to logically incompatible but internally coherent metaphysical interpretations of scientific descriptions. This interpretive rivalry will play a key role in the following argument.

3 The metaphysical poverty of naturalism

3.1 Premises

I'm going to argue that true metaphysical belief cannot be naturalized and hence naturalism, which purports to be a true metaphysical theory, is bankrupt. The formal part of the argument is a *reductio* with the following premises:

> *Naturalized True Belief*:
>> True belief can be naturalized.

> *Preservation*:
>> Candidate SR sentences entail their ordinary counterparts—for example, "Fred's C-fibers are firing" entails "Fred is in pain".

> *Metaphysical Rivalry*:
>> There are incompatible metaphysical theories that can interpret science equally well.

> *Self-Compatibility*:
>> Metaphysical interpretations of science are logically compatible with the metaphysical theories they originate from.

Neutrality:

> The choice between rival metaphysical theories cannot be
> made on a scientific basis (science itself is neutral on the
> choice between metaphysical rivals).

These four premises entail a contradiction, or so I'll argue. Here are the
formal versions of the premises:

Naturalized True Belief:

> If S is a sentence about true belief ("Fred truly believes that P"),
> then it is possible that a true SR sentence $t(S)$, based on some
> scientific theory T, describes the same phenomenon as S.

Preservation:

> For any true sentence S and any scientific or metaphysical theory T,
> $\Box[(\ t(S) \supset S\ ]$, where $t(S)$ is a candidate SR sentence (based on T) that
> purports to describe the the same phenomenon as S.

Metaphysical Rivalry:

> There are logically incompatible metaphysical theories X and Y
> such that, for any possible scientific sentence S, $\Box[\ x(S) \supset \mathord{\sim} y(S)]$.

Self-compatibility:

> If S is a scientific sentence and X is a metaphysical
> theory, then $\Diamond[x(S)\ \&\ X]$.[3]

Neutrality:

> There are metaphysical rivals X and Y such that, for any
> scientific sentence S, if $\Diamond S$, then $\Diamond x(S)$ and $\Diamond y(S)$.

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[3]   I'm assuming that theories are themselves sentences.

Modal claims are interpreted on a domain of logically possible worlds. I take logical possibility to be broad, determined both by the meaning of concepts and by the meaning of quantifiers and logical connectives.

Contrary to Chalmers (1996) and others, I am *not* assuming that logical possibility coincides with metaphysical possibility. That assumption is implausible when we reason about rival metaphysical theories. Metaphysical rivals are (typically) free of internal contradiction and are logically compatible with science, but it is generally agreed that most metaphysical theories are metaphysically necessary if true and metaphysically impossible if false. For example, if the bundle theory of substance is true, then all metaphysically possible concrete particulars are bundles of properties. The contrary view (that the bundle theory is metaphysically contingent, so that concrete particulars are bundles of properties in some possible worlds and different structures in others) is unmotivated, and, as far as I know, has never been defended. Given that metaphysical theories tend to be either metaphysically necessary or metaphysically impossible, the logic of metaphysical necessity is unable to represent the fact that rival metaphysical theories are internally consistent and give rise to consistent metaphysical interpretations of science. If the bundle theory is metaphysically impossible, then the bundle theory implies a contradiction in every metaphysically possible world. Switching to broadly logical possibility eases this logical burden, because a metaphysical theory can be logically possible even if it is metaphysically impossible. Even if concrete particulars are *not* bundles of properties, that they are not is not a theorem of logic or an analytic truth. So logically possible worlds give rise to a model of standard modal logic that can represent rival metaphysical interpretations of science.

3.2 The argument

Dramatis Personae:

X	a metaphysical theory
Y	another metaphysical theory[4]
B	the sentence "Someone truly believes that *X* is true"
n(*B*)	a scientific SR sentence that describes someone's truly believing *X*
y(*n*(*B*))	the scientific description *n*(*B*) interpreted within metaphysical theory *Y*

(1) $\Box(X \supset {\sim}Y)$ because of *Rivalry*

(2) $\Box(B \supset X)$ by the nature true belief

(3) $\Box[\, n(B) \supset B \,]$ by *Preservation*

(4) $\Box[\, y(n(B)) \supset n(B) \,]$ by *Preservation*

(5) $\Box[\, y(n(B)) \supset {\sim}Y \,]$ by (1)–(4)

(6) $\Diamond n(B)$ by *Naturalized True Belief*

(7) $\Diamond[\, y(n(B)) \,]$ by (6) and *Neutrality*

(8) $\Diamond[\, y(n(B)) \,\&\, Y \,]$ by (7) and *Self-Compatibility*

(9) $\bot$ by (5) and (8)

The argument is valid even in the weakest systems of modal logic. All it needs, beyond the standard definition of the modal operators, is the axiom that contradictions are impossible.

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[4]   I'm assuming that *X* and *Y* jointly satisfy *Rivalry* and *Neutrality*.

3.3 The intuitive idea

Before discussing the premises, let me indicate what I take to be the heuristic content of the *reductio*. Take a simple case of true belief—say, Alice truly believes that the cat is on the mat:


Suppose that the naturalist has a sound scientific theory of true belief that covers situations like these. Perhaps the theory postulates some sort of causal interaction between the cat and Alice's brain, and it specifies how information is coded in Alice's brain, giving rise to beliefs that are true iff the right sort of causal interaction takes place between Alice's brain and the world. Or perhaps the theory is slightly less reductive and it includes primitive psychological vocabulary. The details are not important. For simplicity, I assume that the naturalist tells a story where external objects cause the subject's brain to encode information:

coded information

causal influence
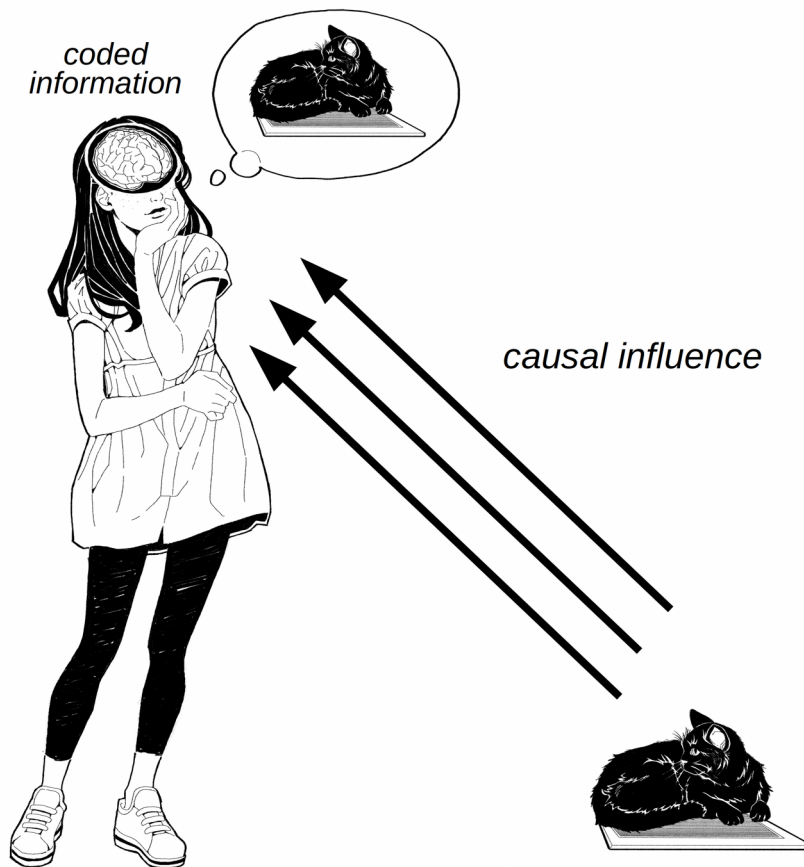
This picture corresponds to $n(S)$, the naturalized version of "Alice truly believes that the cat is on the mat" (=S).

Imagine that the same sort of naturalistic story is told about true *metaphysical* belief—say, Alice truly believes that the bundle theory of substance is true. What would $n(S)$ look like in such a case?
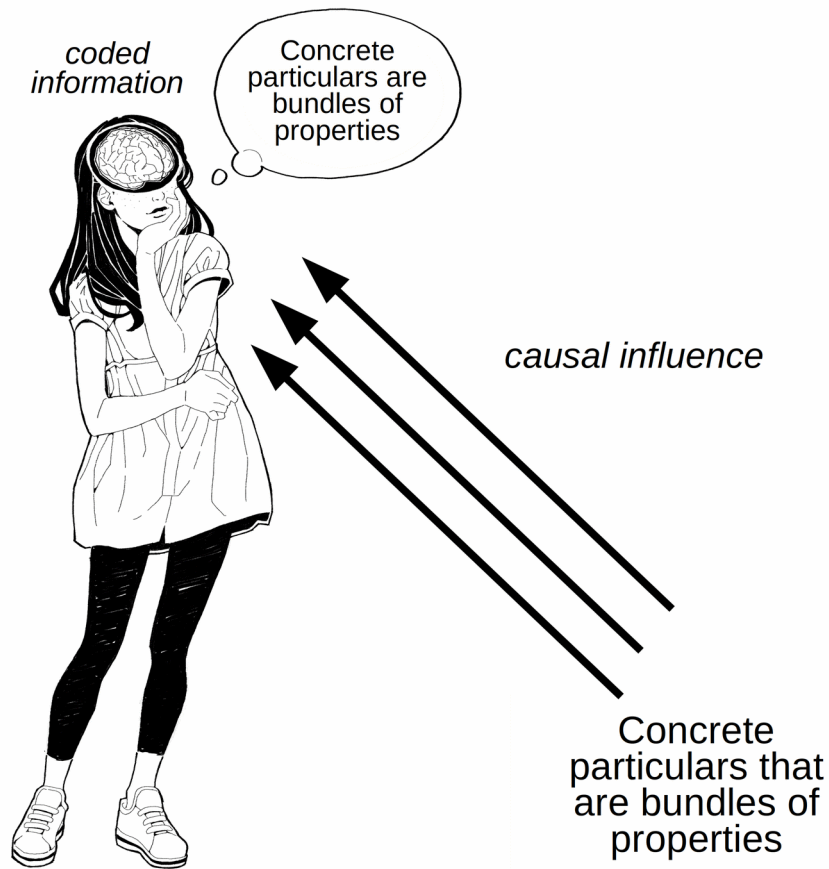
In the previous case, the cat on the mat brought about a brain state that represented the cat as being on the mat. In the present case, concrete particulars that are bundles of properties bring about a brain state that represents concrete particulars as being bundles of properties. And so we have a scientific model of true metaphysical belief.

Clearly, the scientific model represented by the last picture includes property bundles: bundles of properties are portrayed as causing changes in Alice's brain. So we have a scientific theory that posits property bundles. But then *Neutrality* is false: by *Neutrality*, science is not supposed to pass judgement on the metaphysical deep structure of substances. On the other hand, if science does *not*

pass judgement on the metaphysical deep structure of substances, then one cannot apply the scientific theory of true belief to Alice's true metaphysical belief. This is the basic tension that the *reductio* brings out. Scientific theories of mental content cannot represent true metaphysical belief unless *Neutrality* is given up.

An interlocutor could suggest that scientific theories of mental content could be enriched with metaphysical vocabulary, yielding theories that combine science with pure metaphysics. Take, say, a preexisting neuroscientific model of true belief, a model that covers ordinary cases like beliefs about cats. Then, add to this modal some metaphysical posits to generate a scientifically grounded model of true metaphysical belief. Just as cats can cause brain states that encode information about cats, bundles of properties can cause brain states that encode information about the nature of substance.

But this won't work. Imagine a sentence that includes everything that science can tell us about Alice and her mind-world relations, with respect to her true belief in the bundle theory. We're assuming that that sentence, call it "$n(S)$", does not mention property bundles, since bundles only come into the picture when the scientific theory of true belief, developed for cases like the cat's being on the mat, is enriched with metaphysical posits. But then $n(S)$, which can be envisaged as the last picture with certain parts blanked out, will be logically compatible with the following story:
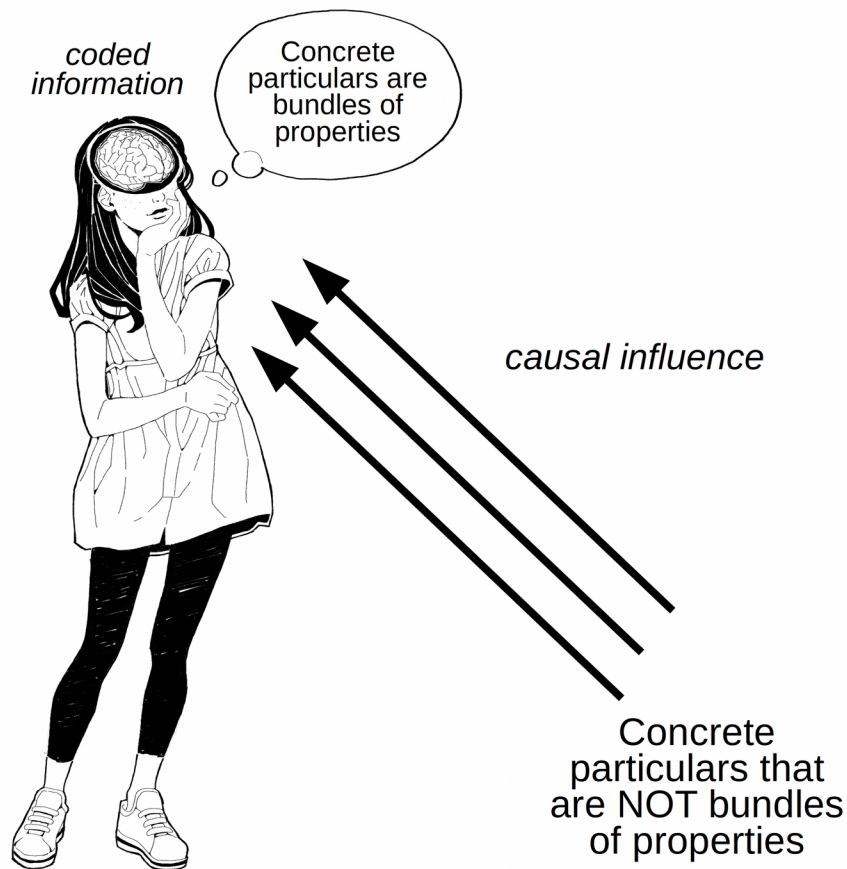
Here we have a case of *false* metaphysical belief: the same brain state (as described by $n(S)$) now misrepresents metaphysical reality, because the scientific theory of true belief is now enriched with different metaphysical posits that come from a rival metaphysical theory. As long as *Neutrality* is in place, this move is logically possible, because science itself won't force us to privilege the bundle theory over its rivals; the scientific theory of true belief can be enriched with posits from either. Consequently, the picture above will correspond to a logically possible world, one where the same brain process that was previously portrayed as giving rise to a true metaphysical belief now gives rise to a false metaphysical belief. In other words, whatever science can tell us about the relations between Alice's brain and the rest of the world will be compatible with the negation of the

bundle theory. But if the same scientific story can be the full scientific story both in a logically possible case of true metaphysical belief and in a logically possible case of false metaphysical belief, then that scientific story is unable to individuate mind/world relations in the realm of the metaphysical. Metaphysical cognition is simply missing from the scientific image of humans. In order to hold onto the notion of true metaphysical belief, the naturalist must posit a phenomenon which is not part of the naturalistic framework itself. And that, in turn, makes naturalism false, since naturalism is committed to the claim that all worldly phenomena are, in principle, within the purview of science.

4 Objections

4.1 Denying Rivalry

Denying *Rivalry* is futile, because there are too many clear and unresolved cases of apparently non-verbal metaphysical rivalry. Think of the debate between competing theories of substance, the debate between relationalism and substantivalism, the debate between Humean and anti-Humean theories of laws, and so on.

4.2 Denying Self-Compatibility

Suppose that the bundle theory is logically incompatible with the bundle-theoretic interpretation of "Fred's C-fibers are firing". *Neutrality* would have to be false in such a case: it would have to be the case that a neuroscientific claim, when reinterpreted along the lines of the bundle theory, turns out to contradict the bundle theory, signalling an incompatibility between neuroscience and one specific theory of substance. To the extent that we have good reasons to accept *Neutrality*, we have good reasons to accept *Self-Compatibility*.

4.3 Denying Preservation

The only counterexamples to *Preservation* that I can think of concern 'explanatory gaps'. Let *S* be "Fred is in pain" and let *n*(*S*) be "Fred's C-fibers are firing". If zombies (functioning human bodies that lack conscious states) are logically possible, then it is logically possible that *n*(*S*) be true and *S* be false, because in some logically possible worlds, C-fibers are firing in absence of phenomenal pain. *Preservation* is therefore false, or so an interlocutor could claim. But this challenge can be deflected by restricting the scope of the modal operators to those logically possible worlds that are epistemically possible. Clearly, *S* supervenes on *n*(*S*) in theworlds we are willing to countenance as candidate-actual. Granted the rest of the premises, the *reductio* will go through.

4.4 Denying Neutrality

To deny *Neutrality*, the naturalist must claim that in *every* case of metaphysical rivalry there is a scientific sentence that is possibly true and is incompatible with one of the rival metaphysical theories. Less formally, this amounts to claiming that every genuine metaphysical debate is in principle decidable on the basis of science, and the rest are garbage. Here's a recent endorsement of this approach:

> This is a polemical book. One of its main contentions is that contemporary analytic metaphysics [...] fails to qualify as part of the enlightened pursuit of objective truth, and should be discontinued. [...] [T]here are now, once again, esoteric debates about substance, universals, identity, time, properties, and so on, which make little or no reference to science, and worse, which seem to presuppose that science must be irrelevant to their resolution. They are based on prioritizing armchair intuitions about the nature of the universe over scientific discoveries. Attaching epistemic significance to metaphysical intuitions is anti-naturalist [...]. (Ladyman and Ross 2007: vii, 10)

Call this view "Mad Dog Scientism." Proponents of Mad Dog Scientism believe that traditional metaphysical debates should be discontinued and the last remaining metaphysicians should stick to interpreting science.

Mad Dog Scientism is problematic because there are many substantive metaphysical debates that are clearly not up to science to resolve even though they concern the metaphysical structure of the physical world. Debates about the nature of modality and lawhood, or about the ontological status of spacetime, are prime examples. It hard to see how one could do away with these questions when trying to make sense of fundamental reality. The belief that these issues will be obliterated or unambiguously resolved by future science requires a fair amount of wishful thinking and it is not supported by contemporary philosophy of science, which heavily dabbles in metaphysical speculation.[5]

4.5 Denying *Naturalized True Belief*

This premise can be denied by embracing one of the following claims:

(I) There is no such thing as metaphysical truth.

(II) Metaphysical true belief cannot be naturalized (but other forms of true belief can be).

(III) True belief in general cannot be naturalized.

(IV) Naturalizing x doesn't mean producing a scientific structure-revealing sentence that describes x.

Any of these assumptions can block (8): their formal upshot is that $n(B)$ does not exist. But these suggestions disagree on the reason why $n(B)$ does not exist.

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[5] For example, Wallace (2012), who uses quantum mechanics to build an ontology on a par with Lewis's concrete pluriverse in terms of metaphysical extravagance. Another case in point is James Ladyman's ontic structural realism (Ladyman and Ross 2007).

If the naturalist embraces (I), she claims that true metaphysical belief is vacuously impossible to naturalize. There are no metaphysical truths, so there are no true metaphysical beliefs to naturalize. Ideas in this vicinity have been sporadically defended in the literature.[6] Metaphysical anti-realism isn't easy to brush aside, but it is an odd fit for naturalists. If there are no facts of the matter in metaphysics, then there are no facts of the matter about our being purely physical creatures or embodied Cartesian minds—generally, there are no facts of the matter concerning the truth of naturalism. So embracing (I) makes naturalism unmotivated.

(II) is question-begging. There is no good reason to bifurcate the naturalist theory of true belief in such a way that metaphysical beliefs get special treatment. In any case, if naturalists find such bifurcation attractive, they are welcome to present their case. Meanwhile, it is important to point out that if (II) *could* be justified, naturalism would become reflexively unstable. By upholding (II), the naturalist would imply that at least one purportedly natural fact (her own true belief in naturalism) does not fit into the her worldview.

Similar remarks apply to (III), which alleges that true belief in general falls outside the scientific image. If true belief is in general is impossible to naturalize, then the human mind is unlikely to be a purely physical phenomenon.

Option (IV) seems to offer an easy way out by rejecting my most basic assumption. In the introduction, I defined naturalism as the combination of a metaphysical thesis and an epistemological thesis. The metaphysical thesis says that all concrete entities are physical and all their properties are physical. The epistemological thesis says that natural science can, in principle, reveal the

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[6]   For a notable recent example, see Hirsch (2011). For criticism of his views, see e.g. Eklund (2008) and Sider (2014).

structure of the concrete world. By denying the second, epistemological thesis, the naturalist adopts a softer version of naturalism that provides a principled basis for rejecting the argument. (Incidentally, it also allows her to uphold (II) or (III).)

Soft naturalism takes many forms. Some soft naturalists embrace a version of non-reductive physicalism, such as Davidson with his anomalous monism. Others, like McDowell (1994, 2008) invoke a slightly mysterious notion of "second nature", a realm that is part of the physical world but falls outside the purview of science. Still others claim that we are cognitively ill-equipped to understand certain physical phenomena, such as the mind-body relation (McGinn 1991, Stoljar 2006).

In a more technical vein, the soft naturalist could invoke an appropriately soft definition of physicalism, such as the idea that themental *supervenes* on the physical. This may seem like an very effective remedy in the present context; indeed, an almost trivially effective one. True metaphysical theories tend to be metaphysically necessary, so their truth supervenes on anything whatsoever. If brain state B encodes the belief that (say) the bundle theory is true, then (assuming that the bundle theory *is* true) B will constitute a supervenience base for true metaphysical belief. But such supervenience relations cannot add anything but mystery to the soft naturalist's worldview. The facts that explain why B obtains have nothing to do with the truth or falsity of the bundle theory. Indeed, those facts—the biochemical processes in the metaphysician's brain—can equally well be described, and hence B itself can equally well be explained at the physical level, under metaphysical rivals of the bundle theory. So the truth or falsity of the bundle theory simply does not enter into the physical explanation of B. Invoking brute supervenience relations between brain states and

metaphysical facts does not fix the problem at hand but simply sweeps it under the rug.

The soft naturalist could object that I'm smuggling in a new notion that was not part of the original argument, the notion of explanation. But why insist on explaining things? Scientific explanation breaks down in certain cases, for example, in the case of metaphysical cognition. This is the main inspiration behind soft naturalism. Some things just lack scientific models, they fall outside the scientific image. But they are still part of *nature*.

As far as I can see, the soft naturalist has two equally unpalatable options here. One is to claim that metaphysical cognition has *no* explanation at all, or at least none that we can understand. In my view, this version of soft naturalism undermines itself, because the proper epistemic attitude in the face of such a mystery is agnosticism, not naturalism. If you are unable to understand how *x* could fit into the physical world, then you have no reason to assume that *x* is part of the physical world.

If the soft naturalist does not take that path, then she owes us a story about the way metaphysical reality impacts our physical brain. And, in that case, questions of explanation are not gratuitious, since the truth or falsity of metaphysical theories simply does not enter into the physical explanation of metaphysician's brain states, and hence it is hard to see the physical brain could reach out to grasp metaphysical reality. Soft naturalism is caught between the Scylla of agnosticism and the Charybdis of supernaturalism.

Illustrations by Réka Nagy

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