

Review of: "Naturalism's maxims and its methods. Is naturalistic philosophy like science?"

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A review of Carin Robinson's *Naturalism's maxims and its methods. Is naturalistic philosophy like science?*

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Some preliminaries

This review of Carin Robinson's '*Naturalism's maxims and its methods. Is naturalistic philosophy like science?*' is taken, at the outset, from a standpoint of agreement with her conclusion: that naturalistic philosophy is not like science. However I do not find all her arguments compelling. On the other hand, this is not to say I find them uninteresting. I think they might be strengthened. This review is written with that goal in mind.

My initial reasons for getting involved with this topic were practical rather than theoretical, as I shall briefly explain in the paragraphs immediately below. Further investigating Carin's argument has drawn me into some more theoretical considerations. These have led in the direction of supporting Carin's view that science is discontinuous with naturalistic philosophy in certain respects. I argue the discontinuity occurs in some ways but not in others. Naturalistic philosophy and science share *the same points of origin*. Science differs in *its methods of justification*. Naturalistic philosophy does not originate in science but rather originates *a priori*, which means in the literal sense, '*from the former*'. Naturalistic philosophers may form productive relationships with science but continuation of these depends, ultimately, for their *scientific* justification, on what scientists, rather than naturalistic philosophers, do. All these points need much further expansion.

My necessarily brief response to the article takes an occupational perspective which is primarily focussed on what people do, but brings in other considerations based on humanistic perspectives. As a 'practical' philosopher who has worked in collaboration with scientists for the past three decades, I have never assumed that my work (mainly in moral and political philosophy, and applied ethics) is anything like theirs. In short, I have never claimed to be *doing* science. I have, rather, relied on a distinction between science as predictive, and ethics as deliberative. The aims of science are fulfilled when predictions are accurate; the aims of ethics are fulfilled when deliberations lead to satisfactory moral outcomes. However I do not think this cursory distinction adequately summarises either discipline, nor does it touch upon their relationship. Much more needs to be said in either case.

My focus, over the past three decades, has been in the *spacebetween* disciplines of science and ethics. In the early 2000s I struck up a productive dialogue with Professor Ross Barnard (University of Queensland). This relationship continues to the present day. Ross's lifetime of scientific work is in genetics and molecular biosciences. Our conversation about the incompatibility between the 'axioms' of genetics and ethics led to co-authoring a paper about the necessity for a third space for dialogue (Barnard & Turnbull, 2006). My interest in developing such a third space has extended, over time, from initially doing advocacy with people with disability in relation to bioethics, to engagements with occupational science, wildlife ecology, environmental conservation, and decolonial studies.

The foregoing accumulation of relationships operating in the space between the natural sciences and humanistic disciplines has led me to understand my own naturalistic perspective as occupational and eclectically holistic. Nothing of what I do (for example in ethics) can be justified from a scientific point of view; neither is such a justification required. Relationships between scientists and people engaged in ethics are firstly justified by the criterion of respect for humanity in oneself and others (Kant). In relation to the environment, relationships are justified by the acceptance of a custodial ethic, such as argued by Australian Aboriginal philosopher Mary Graham.

Review

Some of the comments in what follows are somewhat pedantic and are only included because I think the paper can be improved semantically. The abstract left me initially confused as to the referent of the word 'It' in the opening sentences: 'This paper argues that naturalistic philosophy does not meet its own empiricist mandate. It argues from an empiricist perspective'. Does the 'It', in the second sentence, refer to 'This paper' or to 'naturalistic philosophy'? I concluded, after some deliberation, that 'It' refers to the latter phrase. I suppose, however, a better approach is to leave readers with no doubt over issues of reference.

Carin argues her case by way of a critique of two naturalistic philosophers, Papineau (2014), and Maddy (2007). She supports her argument by comparing a paper by Clark (2013) - one that she claims is 'exemplary' naturalistic philosophy - with a paper in neuroscience by Haynes and Rees (2006). The term 'exemplary' is explained - literalistically rather than evaluatively - as that of providing a *typical* example.

I have no idea of how something gets to be 'typical' of naturalistic philosophy. For me, this raises a question as to whether Carin's use of the word 'typical' picks out the most salient features of naturalistic philosophy, or whether it merely picks out a passing fad. I have a hunch that no one sets the standard for this kind of work. Such things may change. Perhaps Carin's article will help it change!

What I have noticed is that Carin seems to be doing what she most criticises naturalistic philosophers for doing, which is that they rely entirely on arguments, as distinct from doing experiments and providing evidence. Intra-disciplinary critique is, of course, perfectly legitimate and should be encouraged. However, I think Carin's paper might be improved by incorporating what eminent scientists have said about naturalistic philosophy and its relationship with science.

The argument Carin provides moves towards the conclusion that 'most naturalistic philosophical claims are not like

scientific claims'. The word 'most' is a quantification over the entire field of naturalistic philosophical claims, which in Carin's case, seems to be derived entirely from the meaning of the word 'typical'. Her scope of theoretical inquiry is severely limited. One criticism that could be made is that an account of naturalistic philosophy that only includes Papineau, Maddy, and Clark, hardly warrants a conclusion that is quantified by 'most'. In fact, Carin's primary focus is on Papineau's claim that naturalistic philosophers are already doing science. She regards this claim as exemplified in the article by Clark. At best, Carin's argument only supports the quantification of 'some'. I wonder whether changing from 'most' to 'some' would also weaken the argument. The conclusion 'some naturalistic philosophical claims are not like scientific claims' would hardly raise any philosopher's or any scientist's eyebrows.

As best as I can reproduce the main part of her argument, it seems to work like this:

- (Premise 1) Some naturalistic philosophers want their kind of philosophy to count as science (eg. Papineau; with Clark as a typical example).
- (Premise 2) Naturalistic philosophy typically (i.e. mostly) fails to meet an important standard for what claims count as science; namely, the results that come from testing theories by means of empirical evidence.
- (Premise 3) Naturalistic philosophers such as Papineau and Clark do not test their theories by means of empirical evidence.
- (Carin's conclusion) Therefore, *most* naturalistic philosophical claims are not like scientific claims.

I'm not sure that the argument is valid. It seems to me that Carin *assumes* that naturalistic philosophers such as Papineau and Clark *cannot* count as doing science, on the grounds that they do not test their theories by means of empirical evidence. She writes

*(Papineau) admits, philosophers do not do experimental work or fieldwork. They think. They argue. They imagine. They intuit. They use thought experiments. They reason counterfactually. And the scientific character and worth of philosophical claims generated in these manners are tied up with the fact that these claims form part of the thinking which **leads to** empirical fieldwork and confirmation or disconfirmation of theories (Papineau, 2014, pp. 183, 185, 186). And this confirmation is permitted to be, as in science, indirect (Papineau, 2014, p. 181).*

It is not as though their claims are *deliberately* not tested or, that they are of the sort which are *immune* from testing. In many cases naturalistic philosophers are not in the position to carry out testing, because they do not have the necessary instruments, or qualifications for using those, or the institutional support that is also part of the scientific enterprise. So why is empirical *testing* the sole qualifier for *doing* science? I do not think Carin has *shown* why.

It seems to me that Papineau puts the emphasis on *the entire range of doing science*, which (partly but not entirely) involves empirical testing of theories, and moves it away from only being focussed on *what brings results*. This opens the door to the sort of theorising (such as occurs in theoretical physics) that is a *precursor* to empirical testing. Such theorising also involves *doing*, albeit of a different sort to that of using specialist instruments.

Carin, however, maintains that naturalistic philosophy's sort of theorising is not the same as what occurs in theoretical physics.

*When philosophy is theoretical it is not theoretical in the same way as science is. So, in a sense, to hold that naturalistic philosophy, when purely theoretical, is akin to theoretical science is an equivocation of 'theoretical'. If naturalistic philosophy does not specifically emulate the experimental and observational parts of scientific work then it will simply present well-reasoned and coherent systems of thought – **but** just like any other philosophical argumentation which also defers to empirical matters of fact. Descartes' metaphysics and Paul Churchland's eliminative materialism both qualify. Yet, neither of these is comparable, in methodology, to the scientific method.*

Carin's reasoning in the quotation directly above seems to me to involve a reduction of science to its method. If science is reduced to method, it would suggest that science is best performed by artificial intelligence machines that have been programmed to strictly adhere to a method. If this is the case it is worth pausing to reflect on the very great distance science has travelled from its own precursors in naturalistic philosophy.

Naturalistic philosophy first emerged from people with an affinity for natural things or natural processes found that nature provokes or inspires contemplative wonder. Most importantly, historically speaking, it did not emerge from doing science. Rather, science, historically speaking, has emerged from people having an affinity with naturalistic philosophy. Then, over time, various branches of science set their own standards of inquiry, including empirical methods that came to distinguish the sciences from naturalistic philosophy. But in none of the foregoing historical account, is there anything that prevents a scientist nowadays from having an affinity with naturalistic philosophy or vice versa. There could easily be, and almost certainly needs to be, a continuity in the exchange of ideas and even some methods.

If science is to retain a connection with its own origins in contemplative wonder, then it could be argued that one of the most important contributions of naturalistic philosophy to science is to provide a space to enable people to continue to wonder. This is not just the methodological wonder that produces experiments but the entire *faculty* (if that is an appropriate word) through which wonder enhances and expands our sense of being human. (Reflecting further on such matters cannot be continued as part of this review. It is a topic worthy of consideration in its own right.)

The main difficulty I have with Carin's argument is that it potentially avoids counterexamples. I can explain this difficulty as follows. If an example of naturalistic philosophy is offered that fulfils the criterion of *being like science*, then Carin might object that this example is not *typical* of naturalistic philosophy. This seems to be a purely logical or analytical manoeuvre. I think it would be better, rather than base the entire article (particularly *this* kind of article!) on logical manoeuvring, to have claims about 'most naturalistic philosophy' backed up by evidence for either a continuity or discontinuity (or both) between naturalistic philosophy and science.

I have also noticed that Carin concentrates her argument on naturalistic philosophers without any mention of what eminent scientists have to say on the topic. In order to gain greater clarity on the relationship between naturalistic philosophy and science from an eminent scientist's point of view, I reread (after many years) the first three chapters of Richard

Feynman's brilliant *Lectures on Physics* (Feynman, Leighton & Sands, 1963). There I discovered that Feynman states, 'physics is the present day equivalent of what used to be called *natural philosophy*, from which most of our modern sciences arose.' (Feynman, 1963, Vol 1, 3-1). The phrase 'present day equivalent' suggests that natural philosophy and physics share the same point of origin.

The foregoing quotation from Feynman does not, in my view, constitute a complete rebuttal of Carin's argument. But it does complexify it. Natural philosophy must be *like* science in sufficient respects for modern sciences to arise from it. This suggests a line of continuity between natural philosophy and science. What is this line of continuity?

The term that seems conceptually most appropriate to describe this line is '*a priori*', which means, in its Latin derivation, 'from the former'. (<https://www.merriam-webster.com/dictionary/a%20priori>) However, this original meaning appears to have been lost in a haze of confusion in modern academic discourse. The current meaning is more akin to a quasi-metaphysical idea that if something is *a priori*, it comes out of nothing or nowhere, with no basis in reality. It is pure speculation. This imputed meaning has occurred partly as a consequence of language appropriated from ancient philosophical sources having been severed from its connections from 'the former' (that is, from the ancients') concept of reality. *A priori* and *a posteriori* have become co-defining, each term being the opposite of the other. Reality, it is assumed, is defined *a posteriori*.

A series of quotations (kindly forwarded to me by Emeritus Professor Ross Barnard) from theoretical physicist and pioneer of quantum theory, Werner Heisenberg, enables me to go some way towards establishing my point about continuity. Heisenberg argues there is a necessary continuity of *meaning* in order for those in "the quantum age" to preserve their connection with reality.

Quantum theory does not allow a completely objective description of nature. In biology it may be important for a complete understanding that the questions are asked by the species man which itself belongs to the genus of living organisms, in other words, that we already know what life is even before we have defined it scientifically. (Heisenberg, 1958, pp.94,95)

That we already know what life is, constitutes an *a priori* claim. This knowledge far exceeds scientific definitions of the term 'life'. Modern science replaces *a priori* knowledge with what Heisenberg says is 'a closed and coherent system of concepts, axioms, definitions, and laws'.

When [in science] we represent a group of connections by a closed and coherent set of concepts, axioms, definitions and laws which in turn is represented by a mathematical scheme we have in fact isolated and idealized this group of connections with the purpose of clarification. But even if complete clarity has been achieved in this way, it is not known how accurately the set of concepts describes reality. (Heisenberg, 1958, p.95)

Earlier in the book, Heisenberg had written

The concepts may, however, be sharply defined with regard to their connections. This is actually the fact when the concepts become part of a system of axioms and definitions which can be expressed consistently by a mathematical scheme. Such a group of connected concepts may be applicable to a wide field of experience and will help us to find our way in this field. But the limits of applicability will in general not be known, at least not completely. (Heisenberg, 1958, p.80)

What is perhaps most noteworthy is Heisenberg's understanding that our prior knowledge of what life is, is a far more reliable guide to reality than the idealisations of science.

Furthermore, one of the most important features of the development and analysis of modern physics is the experience that the concepts of natural language, vaguely defined as they are, seem to be more stable in the expansion of knowledge than the precise terms of scientific language, derived as an idealization from only limited groups of phenomena. This is in fact not surprising since the concepts of natural language are formed by the immediate connections with reality; ... But through this process of idealization and precise definition the immediate connection with reality is lost. (Heisenberg, 1958, p.188)

Heisenberg goes on to say (on page 190) that 'in this way modern physics has perhaps opened the door to a wider outlook on the relationship between the human mind and reality.'

In order to understand Heisenberg's point, it is necessary, first, to appreciate the impact that quantum physics had on the minds of the physicists who discovered it. The impact was the realisation that the *a priori* of existence - that which sustains the connection of human life with reality - is not a product of science. Once lost, that *a priori* is only re-discovered on the rebound. That rebound is signified by a return to the natural language from which our earliest and most important concepts are derived.

Heisenberg also said that

...modern science is confronted both with the content of the doctrines, which go back to European philosophical ideas of the 19th century (Hegel and Marx), and with the phenomenon of uncompromising belief. Since modern physics must play a great role in these countries because of its practical applicability, it can scarcely avoid that the narrowness of doctrines is felt by those who have really understood modern physics and its philosophical meaning.' (Heisenberg, 1958, p.191)

So, although Heisenberg sees naturalism and science as being distinct, he also sees that modern physics has a philosophical meaning. The implications of modern physics are in relation to our confidence in any assertion of certainty or claims about predictability of the future course of human history. Science and naturalism are distinct methodologically (Carin's point), but they are not distinct in terms of meaning.

In order to sustain Carin's argument that naturalistic philosophy is unlike science it is necessary to locate ways in which science is discontinuous with this form of philosophy. Examples of naturalistic philosophical claims that are not like scientific claims are made at the beginning of every scientific text in which the basic ontology of the particular science in question is established. I use the word 'ontology' here in the traditional sense of 'the basic constituents of reality' or 'the basic constituents of the world'. This sort of investigation must be *prior to* doing science. (I realise that, since the publication of Wittgenstein's *Tractatus* in 1922, and influenced by critiques by Quine and others, some philosophers have abandoned this idea.) I can find no good reason to abandon the claim that ontological investigation is concerned with preliminary, that is, *a priori*, considerations of reality. Such considerations also include the formation of a world-picture. Having a world-picture (or worldview) applies as much in science as it does in religion. In order to expand on these points further, I return to a discussion of Richard Feynman.

Feynman asks, 'So, what is our overall picture of the world?' (Feynman, 1963, Vol 1, 1-1). He answers this question quite directly and immediately as the heading of section 1-2: 'Matter is made of atoms.' Here Feynman repeats a statement that was first articulated by an ancient Greek philosopher, Democritus. Feynman writes,

*If, in some cataclysm, all of scientific knowledge were to be destroyed, and only one sentence passed on to the next generation of creatures, what statement would contain the most information in the fewest words? I believe it is the **atomic hypothesis** (or the atomic **fact**, or whatever you wish to call it) that all things are made of atoms...*
(Feynman, 1963, Vol 1, 1-2)

Feynman later repeats this statement, with an extension into biology.

Everything is made of atoms. That is the key hypothesis. The most important hypothesis in all of biology, for example, is that **everything that animals do, atoms do**. In other words, **there is nothing that living things do that cannot be understood from the point of view that they are made of atoms according to the laws of physics**. (Feynman, 1963, Vol 1, 1-8)

In chapter 3, very elegantly, Feynman articulates the atomic hypothesis with extensions into all major branches of the physical sciences (whilst discounting psychoanalysis). The atomic hypothesis operates as the primary formative device in the scientific world picture. I understand the term 'world-picture' as indicating statements that occupy an *a priori* position in the imagination of a philosopher or a scientist. Feynman claims this statement about atoms is a hypothesis, or is a fact, or *whatever you wish to call it*. In other words, it is not a concern to science what anyone does call it. So if anyone were to call it a basic statement of metaphysics or ontology in science, *it does not matter* from a scientific point of view. This is the case even if, at some point in history, scientists find evidence for the hypothesis (which in the case of atoms was the discovery of Brownian movement).

Scientists proceed from statements of ontology to outlining the experimental methodology by which science is conducted. However Feynman also states the aim of science as follows: 'to see *complete nature* as different aspects of one set of

phenomena', to which he adds 'That is the problem in basic theoretical physics today - *to find the laws behind the experiment; to amalgamate those classes.*' (Feynman, 1963, Vol 1, 2-2). (The classes include heat, electricity, mechanics, magnetism, properties of substances, and so on.)

Taking Feynman's statements about the world-picture of science as accurate 60 years after they were written, one can conclude that what science is after is a complete account of nature; a holistic, synthetic account put together from a preliminary analysis of an enormous range of data into one set of phenomena. This suggests that any scientific analysis of data, is only one basic move towards an overall synthesis, in which the acceptance of the atomic hypothesis is a starting point, one that precedes scientific investigation.

In the foregoing account, analysis and synthesis, the *a priori* and the *a posteriori*, are all integral parts of a greater whole. Feynman's account of the aims of science supports Eric Schliesser's (2019) claim that what he terms 'synthetic philosophy' is continuous with science. (I am aware that Schliesser's use of the word 'synthetic' differs from that of Frege, who supplies Carin's preferred meaning of that word. There may be several uses of the same word, each with their own limited range of application.) One way Schliesser conceives of synthetic philosophy is 'scientifically informed (naturalistic) philosophy that brings together a wide diversity of scientific findings that cohere (with experience)'. He writes,

Synthetic philosophy, which shares kinship with what was once known as 'natural philosophy' or (later) 'philosophy of nature' is made possible by, and a response to, the intellectual division of labor within and among the scientific disciplines.

Schliesser conceives of the scientific disciplines as imposing methodological restrictions on those labouring in each field. Synthetic philosophy offers a way to bring those fields together - at least theoretically - into a unified whole. In this sense Schliesser might be said to be offering a way to fulfil the aim of theoretical physics, and overcome the problem it faces, outlined by Feynman:

*'to see **complete nature** as different aspects of one set of phenomena' ... 'That is the problem in basic theoretical physics today - **to find the laws behind the experiment; to amalgamate those classes**' (Feynman, 1963, Vol 1, 2-2).*

What is needed, however, is a methodological account of the justification of scientific claims. Feynman turns to his experimentalist counterparts in physics to provide this. Schliesser differs here, quite markedly. Instead of experimental justification, he offers evaluation.

I turn to the criteria of evaluation of synthetic philosophy. These need not be invented out of whole cloth. For, some of the ordinary criteria of naturalistic philosophy—sound argument, careful evaluation of evidence, knowledge of the sciences, etc.—carry over without problems. In addition, synthetic philosophies can be evaluated in light of traditional theoretical virtues. In particular, the following virtues are especially relevant: unification, scope, applicability, and fertility or fruitfulness.

It might be argued that evaluation, itself, is a sufficient form of justification. This is a form of justification that relies,

humanistically, on the value of forming productive relationships between people, or bringing together ideas involved in various disciplines. This is a different sort of justification than the synthetic *a posteriori* justifications demanded by science.

Conclusion

In the foregoing I have provided qualified support for Carin's conclusion that naturalistic philosophy is not like science. I have questioned her use of the quantifier 'most' in the sentence 'most naturalistic philosophical claims are not like scientific claims', given the narrowness of her focus, and the lack of breadth of evidence to justify this focus. I have complexified the issue by bringing some of the thoughts of two eminent scientists to bear on the topic. In particular, although Heisenberg sees naturalism and science as being distinct, he also sees that modern physics has a philosophical meaning, so the demarcation between science and naturalism is not absolute. They are distinct methodologically but they are not distinct in terms of meaning.

I'd be very interested in reading Carin's further thoughts on the matter.

References

- Barnard, R. T. & Turnbull, D., (2006). On the Incompatibility of Genetic Axioms with Axioms of Justice and Ethics: Requirement of a Third Space for Ethical Deliberation. *International Journal of Interdisciplinary Social Sciences*, 1: 89-96
- Feynman, R.P., Leighton, R.B., & Sands, M. (1963) *The Feynman Lectures on Physics* (vol.1) California Institute of Technology
- Robinson, C. (2022). Naturalism's maxims and its methods. Is naturalistic philosophy like science? *Qeios*.
- Schliesser, E. (2019). Synthetic philosophy. *Biol Philos* 34, 19 <https://doi.org/10.1007/s10539-019-9673-3>
- Heisenberg, W. (1990) [1958]. *Physics and Philosophy*. Penguin Books Ltd. Harmondsworth. ISBN 0140228594