

A Rejoinder to Nicholas Maxwell's
Aim-Oriented Empiricism: David Miller's Critique

[\(http://philsci-archive.pitt.edu/archive/00003092/\)](http://philsci-archive.pitt.edu/archive/00003092/)

- 0** In this posting, Maxwell comments on Chapter 4.3 of my book *Out of Error* (Aldershot & Burlington VT: Ashgate 2006), which itself had commented on the main thesis of Chapters 1–3 of his book *The Comprehensibility of the Universe* (Oxford: Clarendon Press 1998).
- 1** Maxwell had written in ¶ 22 of his paper at <http://www.kjf.ca/28-TAMA1.htm/>, in which are expounded anew some of the central doctrines of his (1998):

In persistently excluding infinitely many . . . empirically successful but grotesquely ad hoc theories, science in effect makes a big assumption about the nature of the universe, to the effect that it is such that no grotesquely ad hoc theory is true, however empirically successful it may appear to be for a time. Without some such big assumption as this, the empirical method of science collapses. Science is drowned in an infinite ocean of empirically successful ad hoc theories.

In an attempt to resist this intrusion of unnecessary metaphysics into science, I remarked:

The words ‘in effect’ here are tendentious. Since scientific hypotheses in modern times never mention God, it might be said that science ‘in effect’ makes ‘a big assumption’ of atheism. But it does not make this assumption, and many scientists privately assume the opposite. Hypotheses that bring in God are simply excluded, rightly or wrongly, from empirical consideration. That does not mean that they might be discussed non-empirically, as indeed they are being discussed in this paragraph.

- 2** In the present posting, after summarizing yet again the doctrine (known as Aim-Oriented Empiricism) that he embraces, Maxwell begins in earnest on p. 7 with the accusation:

Miller is quite wrong to suggest that disunified theories are like ‘God hypotheses’ in that they are simply excluded from scientific consideration.

On p. 8 he says:

Miller is quite wrong when he suggests that seriously disunified theories are like ‘God hypotheses’, never taken seriously in science.

And then on p. 10 he sums up

Miller is thus quite wrong to say that the disunified theories I consider are like ‘God hypotheses’, automatically excluded from science.

I do not know that I ever said what I am here said to have said (certainly the word ‘automatically’ appears nowhere in Chapter 4 of *Out of Error*), but if I did, I was simply reporting what Maxwell has said many times and what in footnote 2 of the posting he refers to as ‘my [Maxwell’s] argument that no severely disunified physical theory is accepted, whatever its empirical success’. If he now allows exceptions, so much the better. As an outsider I am impressed by how little unity is visible in particle physics, genetics, oncology, and many other fields. No doubt workers in these fields try hard to produce neat unified theories, but there is usually a gap between aspiration and achievement.

- 3 What I do not see is why any of this is relevant to my criticism. My point was that the failure of most, if not all, contemporary scientific theories to mention God does not imply that *science assumes that there is no God*. It implies only that *science does not assume that there is a God*. Maxwell doubtless agrees that not assuming Y is distinct from assuming $\neg Y$.
- 4 In the same way, the near absence of disunified theories from contemporary physics (and perhaps from science in general) does not imply that *science ‘does assume that the universe is such that all severely disunified theories are false’* (Maxwell’s words on p. 2). It implies at most that *science does not assume that the universe is not such that all severely disunified theories are false*; in brief, *science does not assume that the universe is a mess*.
- 5 In other words, science, in my view, assumes neither that the world is tidy nor that it is untidy. What it does is to propose theories of local tidiness. By ‘local’ here I mean to suggest that no actual scientific theory makes a single universal claim about everything. (I shall change my mind about ‘the true unified “theory of everything” ’ when it is discovered.)
- 6 Maxwell writes at the end of the posting that

persistent preference for unified theories when endlessly many empirically more successful disunified rivals are available implies that science makes a persistent assumption about the world. The assumption is implicit in the existing methods of physics; it is not an ‘additional principle’.

I should rather say that the reason why an assumption of (local) tidiness is not ‘an additional principle’ is that it is a logical consequence of (if you like, is ‘implicit in’) every universal theory that we propose. I accept therefore that there is some difference between God and disunity. Scientific theories do embody a restricted (local) version of something like a principle of unity, but they do not embody any restricted version of atheism; occasionalism, though never asserted, is never ruled out.

- 7 For all I know of the matter, Maxwell may be right that Lévy’s theory (‘which combined in an ad hoc way two distinct modifications of Newton’s law of gravitation, . . . [but] successfully predicted all the success of NT [Newtonian theory], and in addition successfully predicted the observed orbit of Mercury’) was rejected, or at least ‘not taken seriously as a rival to NT’, even though it failed no test (p.7). I am not a 100% empiricist (see *Out of Error*, p.93, first new paragraph) but this failure of empiricism does suggest to me a lack of empirical ruthlessness. I have been unable to discover whether the only thing that there was to be said against Lévy’s theory was that it was ‘disunified’.
- 8 Let me reformulate the main difference between Maxwell and myself, as I see it, since other differences can wait until this difference is resolved. Maxwell thinks that any hypothesis that has not been rejected is ‘available’, as he puts it (p.2 and elsewhere), even if it is not entertained seriously. He therefore looks for a principle that licenses the rejection of a host of hypotheses that (we are agreed) it would be disastrous to spend our time on (even if they are, in some rather loose sense, ‘empirically successful’). That is why I call his position a form of justificationism. He is not content simply to acknowledge that such hypotheses are almost never proposed (except by philosophers). He demands some principle by which their rejection may be authorized.
- 9 I do not wish to be frivolous, but Maxwell’s position calls to mind the old joke about snapping fingers as a way to keep elephants at bay (see http://www.huffingtonpost.com/martykaplan/it-keeps-the-elephants-a_b.16087.html/, for example). While I think that the absence of elephants from a bar (or a railway carriage; the story has many variants) needs no

more explanation than that elephants rarely, if ever, go near bars (or railway carriages), Maxwell thinks that it is only properly explained as the direct result of some interdictive activity on the part of those within the bar (or railway carriage). I do not deny that snapping fingers may sometimes be a useful gesture, but I do deny that it, or any other act of prohibition, is needed to keep bars (or railway carriages) free of elephants.

- 10** Maxwell writes on p.12 of his posting, in response to a summary (*Out of Error*, p.94) similar to that of **8**:

This . . . is wide of the mark. . . . the whole point of making explicit influential, metaphysical assumptions that are implicit in persistent preference for unified theories when empirically more successful rivals are available is to make it possible to subject these assumptions to sustained critical scrutiny in the hope that this will lead to their improvement, and thus contribute to the progress of science. . . . The motivation is, in other words, thoroughly Popperian in character, even if the outcome clashes with Popper's falsificationism. There is nothing 'justificationist' about this criticism of Popper whatsoever.

- 11** With respect, what is justificationist is Maxwell's supposition that there exist any 'influential, metaphysical assumptions . . . implicit in persistent preference for unified theories'. His reply to me seems not properly to appreciate that I deny this supposition. Indeed, I am inclined to say about his criticism what he said about mine (p.1): that it 'does no more than criticize a parody' of the position sketched in Chapter 4 of my book. Mill (*A System of Logic*, p.574; see *Out of Error*, p.244) held that it is 'a rule both of justice and of good sense to grapple not with the absurdest, but with the most reasonable form of [what is supposed to be] a wrong opinion'. Maxwell does the opposite.