

Comparative Assessment of Theistic & Naturalistic Explanations of

Religious Belief: A Further Reply to Robert Nola

(Work under progress)

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Robert Nola, a philosopher of science, has recently defended arguments against the existence of God on the basis of naturalistic explanations of religious belief (Nola 2013, 2018). A naturalistic explanation (NE) is a non-epistemic explanation of religious beliefs which does not assume the existence of the object of that belief, i.e., God. Apart from psychological & sociological naturalistic explanations which are often proposed by atheists like Freud & Durkheim, contemporary atheists are more likely to appeal to neurophysiological, or evolutionary explanations (often coupled with Cognitive Science of Religion, CSR). Nola explicitly says that “there are two targets of debunking arguments”- “an act such as x’s believing that God exists, and the putative state of affairs expressed by the proposition that God exists” (Nola 2013, 164). In Nola (2013), he directly argues against the existence of God to the conclusion of atheism on the basis of the alleged incompatibility of naturalistic explanations of religious beliefs over supernaturalistic explanations of religious belief. I have already provided a preliminary reply to this argument (Kwan 2022). In Nola (2018), he continues to argue for the superiority of naturalistic explanations of religious beliefs over supernaturalistic explanations of religious belief by elaborating various criteria of good explanations, and then arguing that NEs of religious beliefs would satisfy those criteria better. In this paper, I provide a further reply to Nola by criticizing his arguments for the superiority of NEs over supernaturalistic explanations of religious belief.

Are Naturalistic Explanations Incompatible with Theistic Explanations?

Because some of the earlier discussions are relevant to this paper, let me summarize my first exchange with Nola here. He proposes an argument against belief in God on the basis of naturalistic explanations of religious beliefs. This takes the form of an inference to the best explanation (IBE): “The various scientific accounts recently developed of the causes of religious beliefs have gained considerable explanatory efficacy... the naturalistic stance offers the better explanation” relative to the “folk explanatory hypothesis, F, which supposes that ultimately the divinities ... do exist and have a casual role in bringing about” religious belief. So according to IBE, “it can be inferred that it is far more reasonable to believe the naturalistic rather than the supernaturalistic explanation” (Nola 2013, 162). Nola also claims that, “*In accepting this conclusion* F is thereby rejected and its ontology of God(s) is eliminated... In this manner IBE provides one kind of debunking argument aimed directly at the claim that Gods exist” (Nola 2013, 167; italics mine). So one of Nola’s major assumptions is that naturalistic explanations and folk explanations (or theistic explanations in my terms) of religion are incompatible: “naturalistic and ‘folk’ explanations are incompatible, particularly at the level of the ontologies they respectively propose” (Nola 2013, 166).

Having laid down the framework, Nola goes on to propose three promising candidates for naturalistic explanation: Freudianism, Hypersensitive Agency Detection Device (HADD), & Moralising Mind-Policing God. Since discussions about HADD are more relevant to this paper, I will leave out the other two NEs considered in Nola (2013).

Hypersensitive Agency Detection Device (HADD)

“Error Management Theory proposes that natural selection is to be understood to favour those errors which are less costly, and not to favour those errors which are more costly, particularly those that are fatal,” and it in the end produced an “error-prone ADD. It will make Type I errors in giving predator alerts when there is no predator; the cost here is that of being unnecessarily alert when one might do other things that are to one’s advantage” (Nola 2013, 174). Moreover, “various aspects of human cognition mentioned, such as HADD, ToM and MCI, can come together in the human attribution of agency to nature” (Nola 2013, 176). ToM (Theory of Mind) and MCI (Minimally Counterintuitive beliefs) are also mechanisms postulated by CSR the details of which we will not go into here.

Hence “HADD will not be a reliable detector in the sense of delivering truths most of the time when it operates” (Nola 2013, 175), because it is liable to be “off-track.” “The very idea of HADD having evolved requires that it be hypersensitive, and this contributes to its unreliability... Those within evolutionary psychology who advocate HADD as a cause of religious beliefs are on a path towards a debunking of those beliefs” (Nola 2013, 177). The appeal to HADD belongs to contemporary mainstream CSR, but “most scholars working in the CSR reject selectionist explanations in favour of a structural constraints-based account of the evolution of religion.” So “religion is an incidental *byproduct* of domain-specific cognitive adaptation that underwrite and constrain the universe of religious representations and their associated behaviours” (Powell and Clarke 2012, 459; italics mine).

Why Naturalistic Explanations Are Not Incompatible with Theistic Explanations

Nola believes that naturalistic explanations and folk explanations of religion are incompatible because naturalistic explanations “rule out any appeal to supernatural entities.” First, we need to point out that naturalism is indeed an ontology excluding the supernatural. However, it is difficult to understand why naturalistic explanations “rule out any appeal to supernatural entities” unless we identify naturalistic explanations with naturalism. However, naturalistic *explanations* in themselves do not presuppose a comprehensive naturalistic *ontology*, because they only propose that natural entities or processes are sufficient to explain the rise or persistence of religious beliefs. This does not entail that natural entities or processes are ALL that exist- and only this amounts to a position of naturalism. At most supporters of naturalistic explanation may adopt a rule of *methodological* naturalism, which should be distinguished from *metaphysical* naturalism. So Nola’s major assumption of the incompatibility of a naturalistic explanation and a “folk” explanation seems false.

Types of Religious Explanation and Levels of Explanation

So, even if it is far more reasonable to believe the naturalistic rather than the supernaturalistic explanation of religious beliefs, it does not follow that it is unreasonable to believe in God. But among these folk explanations, we need to distinguish crude or direct supernaturalistic explanations from sophisticated theistic explanations of some event E. A crude supernaturalistic explanation of E would appeal to *direct, unmediated or sometimes miraculous* actions of God, whereas a sophisticated theistic explanation would allow divine causality of E to be *mediated by secondary causes* including “items and processes found in the space-time framework.” So the validity of a naturalistic explanation would at most defeat crude supernaturalistic explanations but is perfectly compatible with a sophisticated theistic (or theological) explanation. As Jonathan Jong recognizes, “A successful naturalistic explanation of a particular religious belief system, R, might count against R if it insists on its own supernatural origins” (Jong 2013, 526), but not otherwise. However, a sophisticated theist may fully admit the truth of the naturalistic explanation of his religious belief but insist that the processes or mechanisms postulated in that naturalistic explanation (evolutionary history of human beings, HADD, etc.) are themselves created by God in order to bring about religious beliefs. So even if the premises of Nola’s IBE were true, it does not really show that theism is false.

In general, naturalistic and theological explanations of phenomena may conflict only when both occur at the same level of explanation. While crude supernaturalistic explanations may compete with naturalistic explanations at the same level, theistic explanations need not and typically do not. Moreover, concerning the

explaining of religion, in fact there are several kinds of explanation. For example, we can distinguish the origin explanation (the very origin of religion in human history, or phylogeny), from the formation of religious belief in a certain individual (the ontogeny of religious belief). In CSR “there are evolutionary causes of developmental facts, and developmental causes of facts about cognitive architecture and process and, finally, cognitive causes of religious phenomena. In this case, cognitive explanations of religion are proximate explanations, whereas evolutionary explanations of religion are ultimate explanations.” So “multiple levels of analysis are far from foreign in CSR” (Jong 2013, 527). Just as “cognitive, developmental and evolutionary explanations of religion do not compete with one another, theological explanations do not compete with either of them insofar as they occur at a still higher level of explanation than do evolutionary theories” (Jong 2013, 528). This can be called the Metaphysically Ultimate level.

Here I have to clarify the use of some terms first. In current CSR, the cognitive explanations are called proximate explanations, whereas evolutionary explanations of religion are called ultimate explanations, but I find these terms misleading in the context of philosophy of religion. Because if we are really talking about the truly ultimate origins of religion, our question is whether the Ultimate which ends the chain of explanations is God or the physical universe. Relative to this question, both cognitive explanations & evolutionary explanations of religion are only proximate rather than ultimate explanations. These terms are understood in this way in this paper.

Theists explain the existence of individuals living today by divine creation, but this explanation does not conflict with the scientific explanation of human existence in terms of the science of reproduction. While the latter provides the proximate explanation of our existence, the Creator who established all these mechanisms in the beginning provides the Metaphysically Ultimate explanation. Both can co-exist happily. Similarly, proximate explanations of religious belief in terms of naturalistic processes and Metaphysically Ultimate explanation of religious belief in terms of the Creator’s action can co-exist happily. Since one crucial premise of Nola’s IBE is false, his incompatibility argument cannot really go through. For further details of my arguments, see Kwan (2022).

Exposition of Nola’s Argument

The Overall Shape of Nola’s Argument

Nola thinks that the “term ‘religion’ does not denote a natural kind of ‘thing’; nor does it refer to anything with an ‘essence’ which all the various religions share.” But he does allow that various religions have a kind of “family resemblance” (72) with respect to a cluster of characteristics. So for CSR the things to be explained (the explananda) may include various religions or their major characteristics, & one of them is the widespread belief in spiritual entities & various kinds of gods or divinities. Nola’s focus is on this “core belief that one or more such entities exist” (Nola 2018, 74), in contrast with more specific religious beliefs such as Trinity. Nola’s question is how to explain this widespread belief in a divinity- Nola calls it B but I will call it BD.

In his paper, Nola only considers & compares two kinds of explanations of BD (Explanans): naturalistic explanations (NEs) which eschew supernatural explanations versus folk religious explanations which appeal to divinities. (More discussions of these two kinds of explanation will be provided shortly.) The comparative assessment is based on “standard criteria, proposed in the philosophy of science, for comparing rival scientific hypotheses within competing frameworks, or competing ‘world-views’” (Nola 2018, 74). His final

conclusion is that “naturalistic explanations (exemplified by HADD but not only HADD) provide better explanations of belief in divinities than does the folk explanatory schema of traditional folk religions” (Nola 2018, 73). The major NEs considered by Nola are derived from evolutionary & cognitive psychology in which HADD features prominently. So this overall NE is symbolized by E_H . Since NEs are to be preferred rationally, it follows that “CSR is not world-view neutral & provides ground for naturalism” (Nola 2018, 73, n. 2). Presumably the term ‘naturalism’ here refers to something more than the NEs themselves, & it should be understood as the worldview of metaphysical naturalism.¹

However, Nola has not provided any definition of naturalism in his paper. Here I will adopt Steven Duncan’s definition of metaphysical naturalism:

“1. There exists only the universe that is present to us in sense-experience & studied by the natural sciences; there is no supernatural reality of any sort.

2. The existence of the universe is a surd fact neither needing nor admitting of any further explanation.

3. Matter is the ultimate reality & every phenomenon is ultimately reducible without remainder to matter & explicable in terms of its properties, states & processes occurring within nature & studied by natural science.

4. The preferred materialist ontology is *physicalism*, according to which the fundamental laws governing matter & material processes ultimately reducible to & expressible in the ontology required by the fundamental natural science, physics.

5. The laws of physics govern all phenomena at the macroscopic level, including human thought & behaviour; all phenomena, then, including human acts, are explicable in terms of efficient causes & are thus physically necessary” (Duncan 2007, 35). I think this reflects the mainstream understanding of contemporary naturalists, including Nola.

Comparative Assessment of Naturalistic & Theistic Explanations of Religious Belief

¹ Nola thinks that “the supposed existence of HADD as a cause of religious believing provides a debunking of religious belief” (Nola 2018, 73). Due to space limitations, I have to deal with this issue in a later paper.

Nola compares naturalistic and non-naturalistic theories of BD under 5 criteria: Ontological Parsimony, Explanatory Breadth, Explanatory & Predictive Novelty, Progressive Explanatoriness, & Absence of Untestable Assumptions. He argues that E_H or NEs are superior to folk religious explanations (F), or what I call theistic explanations (T), according to all these criteria.²

1) Ontological Parsimony: “Other things being equal, prefer that theory which postulates the existence of fewer things or kinds of thing... If we suppose that F will include all the naturalistic items that E_H includes but supposes non-naturalistic items that E_H does not, then E_H is to be preferred” (Nola 2018, 88). So Nola thinks that compared to T, NEs will win.

2) Explanatory Breadth: “Other things being equal, prefer the theory which explains a wider array of facts over a theory which explains fewer.” Consider “the wider theory of evolution which contains H, but a lot more... the theory of evolution explains more about the facts of biology than F does.” Some theists may appeal to theories like ‘creationism’ or ‘intelligent design’ but Nola believes that they “make no headway against the theory of evolution when it comes to explaining biological facts.” It follows that F “lags behind badly on this score” (Nola 2018, 88).

3) Explanatory & Predictive Novelty: “Other things being equal, prefer the theory which leads to new unknown facts or offers an explanation for the first time of old well-known facts, over a theory which does neither. However, “it is hard to see how such novelty can be obtained out of the God hypothesis alone.” So F “needs much supplementation from our current science. However E, of which H is part, does yield predictive novelty in the sphere of biology” (Nola 2018, 88). Nola does not provide detailed support for this claim but mainly appeals to the evolutionary biologist Jerry Coyne.

4) Progressive Explanatoriness: “Other things being equal, prefer the theory which is progressive in that it uncovers new facts while a rival theory merely accommodates itself to such new facts which are relevant to it but in which it plays no role in uncovering these new facts” (Nola 2018, 88-89). He then asks, “Which theory, F or E_H, was employed in the discovery that the human mind contains a cognitive device, HADD, for the detection of agency? It was not F but E_H. F ... rather piggy-backs on discoveries made in the rival science E_H ... Discoveries about how a supposed God makes himself apparent to us humans ... are in fact made in a rival progressive programme, E_H, which does not need the divine postulates of F at all... if it [F] were a more successful research programme than its rival E_H, it ought to have anticipated these new facts” (Nola 2018, 89).

Nola notices that theists like van Inwagen claim that since CSR & the like are not incompatible with theism, they can be incorporated into the supernatural theory of BD. But Nola objects that the incorporation of E_H into the supernatural theory S “can be done too easily” by just forming “the conjunction (S & E_H).” But the

² In fact Nola also briefly discusses a sixth criterion of Fewer *ad hoc* Assumptions. However, he does not think that this criterion is clearly applicable here.

existence of S here seems to be “irrelevant” because all the explanatory work is done by E_H rather than S. So “the incorporation can occur with a false, or a true, S... This conception of ‘incorporation’ by mere conjunction is not something that any naturalist should fear” (Nola 2018, 89).

Nola also criticizes Justin Barrett, who “claims that the divinity can contemplate all possible worlds & then make one of them actual, viz., the one in which evolution occurs & which culminates in us humans with HADD-like capacity to believe in, & love, God” (Nola 2018, 89). But Nola objects: “a HADD-like capacity to detect God does not necessarily imply that what is detected is also loved... There are non-believers & anti-theists who have, or want, no such loving relationship... So it would be ... a misjudgment on the part of the deity to make a world that has non-loving non-believers. Moreover, ... it turns on the belief ‘that the deity has human passions, & one of the lowest human passions, the restless appetite for applause [love]’” (Nola 2018, 90). The last sentence is a quotation from Hume.

5) Absence of Untestable Assumptions: “Other things being equal, prefer the theory which has no untestable assumptions,” but F “invokes untestable auxiliary hypotheses about the intentions of a divinity” such as God’s desire for “a world with creatures in it like us who can at least have a belief in God.” But “what evidence do we have for God having such intentions?” (Nola 2018, 90). The answer is NO: “there is no independent evidence for what God desires & wants” (Nola 2018, 91). This shows that the assumption about God’s desires is an untestable assumption. Nola further points out that “It is not enough to merely cite the fact that there is such a world with creatures in it like us with HADD like devices... Assuming this in part begs the question” (Nola 2018, 90).

Another “problem is that HADD seems not to be the best way in which an all-powerful divinity could get humans to believe in him. HADD is unreliable & a more reliable detection device might have been in order if we are supposed to detect him” (Nola 2018, 91). At the end of these discussions, Nola’s “verdict is that naturalism provides the better explanation” of BD (Nola 2018, 91).

Before evaluating Nola’s argument, let us note that while Nola’s suggested criteria are in general relevant, the exact formulation of each criterion & its significance are also understood somewhat differently by different scholars. For example, Swinburne thinks that there are four criteria to judge a postulated hypothesis: “First, we must have observed many phenomena which it is quite probable would occur and no phenomena which it is quite probable would not occur, if the hypothesis is true. Secondly, it must be much less probable that the phenomena would occur in the normal course of things, that is if the hypothesis is false. Thirdly, the hypothesis must be simple. That is, it must postulate the existence and operation of few substances, few kinds of substance, with few easily describable properties behaving in mathematically simple kinds of way.

We can always postulate many new substances with complicated properties to explain anything which we find. But our hypothesis will only be supported by the evidence if it is a simple hypothesis which leads us to expect the various phenomena” (Swinburne 2020, 21).³ “And fourthly, the hypothesis must fit in with our knowledge of how the world works in wider fields—what I shall call our ‘background evidence’” (Swinburne 2020, 22).

Nola’s first criterion & Swinburne’s third criterion both emphasize some kind of simplicity, but later we will come to see that there are also big differences. I think Swinburne will agree with Nola’s second criterion & to some extent his third criterion, but he will disagree with the emphasis on the prediction of novel fact. Swinburne’s focus is on the consideration of likelihoods, which are the conditional probabilities of the evidence we know, given the truth of the hypothesis in question. In this paper, the notation $P(e|h)$ expresses how likely is it that evidence e would exist, assuming that the hypothesis h is true. However, if we look at the exact wordings of Nola’s third criterion, he also allows for the importance of the explanation of old facts- this is the point which Swinburne would like to emphasize. Concerning Nola’s fourth & fifth criteria, I think Swinburne will have major reservations, especially about their application to the evaluation of worldviews. More about these in the discussions below.

Evaluation of Nola’s Argument

The Formulation of the Hypotheses

Nola wants to assess supernaturalistic explanations (or internalist explanations) & NEs comparatively, but I find his formulation of these two theories as well as his methodology problematic. For example, Nola understand supernaturalistic explanations of religious belief in this way: “the religious framework is taken at face value to be *sui generis* & is not to be explained, or explained away.” This implies “the counterfactual that if there were no God ... then there would be no human belief in it... *What the particular causal processes are between God & human believings that God exists can be left open.*” For example, “HADD might be invoked” by theists as well as long as “the divinities explain why people have the core beliefs they do” (Nola 2018, 74; italics mine). Nola now clearly allows the theistic explanation to incorporate proximate explanations which appeal to naturalistic processes, & this help to clarify the debate. But his characterization of the theistic explanation is too strong: first: Christians may believe Christ to be *sui generis* but not religion itself (e.g., Barth); second: there is no need to accept the above counterfactual. At most, we may claim that if there were no God, then it would be less likely that human belief in God would exist, or that $P(\text{religious belief/theism})$ is larger than $P(\text{religious belief/naturalism})$. This claim seems plausible but Nola’s argument exactly wants to refute this. Nola also characterizes a supernaturalistic explanation as one which invokes a deity as a central casual factor in the etiology of people’s belief in God. I find this acceptable, but again this definition alone would include both crude interventionist explanations as well as sophisticated theistic explanations which incorporate secondary causality.

³ For a full account of the nature of simplicity, see Swinburne’s *Simplicity as Evidence of Truth*, Marquette University Press, 1997; or *Epistemic Justification*, Oxford University Press, 2001, chapter 4.

Nola's characterization of NEs (or externalist explanations) is also problematic due to its ambiguity. NEs are said to ““bracket off” any existential commitment of the ‘folk’ [religious] view; or ... they consider them to be false”; externalists “downplay, remain neutral about or deny the existential commitment to such divinities... explanations ... are not to be given in terms of divinities but something distinctly non-divine. Overall they eschew the internalist framework” (Nola 2018, 75). Here Nola's understanding of NE seems to be oscillating between two types of NEs: those who remain neutral about God may eschew supernaturalistic entities in their explanations, but this is different from denying God; nor is it considering theism false. NEs in the first sense is open to (or even invite) further theistic explanations because in the end we still need to explain the entities invoked by NEs themselves. Moreover, those entities may be more likely to exist in a theistic world than in a naturalistic world. In this case, an overall theistic world which incorporates NEs in the first sense may even be reasonable. NEs in the second sense would not allow supernaturalistic entities at any stage, & they would finally resort to the physical universe to provide the ultimate explanation.

So although both kinds of NEs would not make use of the supernatural in their proximate explanations of BD, this in itself does not mean that NE is necessarily incompatible with a theistic explanation at the ultimate level. Let us call NE in the first sense a proximate NE (PNE)- it is compatible with metaphysical naturalism as well as theism. NE in the second sense not only eschews supernatural explanations at the proximate level, but also makes a commitment to metaphysical naturalism. Let us call this kind of NE a metaphysical NE (MNE). The task before us is to decide the comparative merits of the theistic explanation & MNE rather than PNE. Nola seems to be confusing the two different issues, & often formulates his comparative assessment as a choice between the theistic explanation & PNE (E_H).

His understanding of naturalism also seems to conflate its meaning at two levels. For example, he says that naturalism “rejects any commitment to the supernatural... The ‘folk’ theory & any naturalistic theory will be rival theories differs not only in their ontological commitments but also in their explanatory hypotheses” (Nola 2018, 75). If the naturalistic theory only means a proximate NE, then it does differ from the theistic explanation in their ontological commitments but those different commitments are not incompatible! So they are not rival theories in the strict sense. Nola seems to revert to the assumption of incompatibility which I thoroughly rebut in my first reply to Nola.

To sum up, I think in this debate, we should consider various theories as below.

T1: God creates the world & sets up the naturalistic processes which cause BD; BD is *normally* caused by these naturalistic processes at the proximate level [but the possibility of direct intervention by God is not necessarily excluded by T1].

T2: When God wants to induce a BD in a person, *normally* He bypasses naturalistic processes & instead directly causes BD in that person [direct intervention by God is the norm here; the proximate cause is also the ultimate cause].

PNE: BD is caused by naturalistic processes such as HADD at the proximate level but the ultimate source of these naturalistic processes is not specified. [They may ultimately be caused by God or not- the Ultimate may be the physical universe which began in the Big Bang]. So T1 is compatible with proximate NE.

MNE: BD is caused by naturalistic processes such as HADD at the proximate level & the ultimate source of these naturalistic processes is the physical universe which began in the Big Bang & so on.

So both T1 & T2 are incompatible with MNE. T2 is incompatible with both proximate NE & metaphysical NE. So the plausibility of even the proximate NE may render T2 implausible. I accept this implication although this cannot be said to be completely confirmed due to the uncertainties about CSR itself. I think the major task at hand should be the comparative assessment of MNE versus T1, & not PNE versus T1 or T2.

Comparison of Ontological Parsimony & Simplicity

Nola proposes this Principle of Ontological Parsimony (POP):

POP Other things being equal, prefer that theory which postulates the existence of fewer things or kinds of thing.

POP is fine as far as it goes, but I think this should be subsumed under the more important & broader Principle of Simplicity. I will argue below that the criterion of ontological parsimony is not the most relevant principle for the comparative assessment of worldviews like theism & naturalism. Moreover, the application of a properly formulated Principle of Simplicity would render the theistic explanation superior to the MNE, which, as I argue above, is the correct alternative to be compared to theism rather than PNE.

According to POP, it does seem that theism is a less economical hypothesis than its naturalistic rival.

However, It is well-known that simplicity can be measured in different ways and not every way is as epistemically significant as another, & a certain way of understanding simplicity may be applicable in some contexts but not in others. POP is one important way to spell out the idea of simplicity, & it seems applicable to *competing* explanations, which can't be true simultaneously. Consider a murder case in which the detective finds the following two hypotheses equally capable of explaining the murder:

M1 A alone was the murderer.

M2 A & B both were the murderers.

M1 & M2 surely are competing theories. Suppose that both can explain all the evidence. In this case M1 seems preferable on POP, & this judgment seems reasonable. But consider another example:

M3 A, B, C, D & E were the murderers: apparently each of them contributed to the death of the victim independently.

M4 A, B, C, D & E were the murderers: each of them contributed to the death of the victim, but in fact the whole thing was orchestrated by a mastermind F.

On POP alone, it seems that M3 is to be preferred over M4 because M3 postulates fewer people involved in the murder than M4. But this judgment does not seem very reasonable. It might be the case that just by chance the efforts of 5 people jointly resulted in the death of the victim, but if the chance is not too high, it is at least reasonable to raise the question about the existence of a mastermind behind all these efforts. So M4 cannot be ruled out merely on the basis of POP, & in some cases M4 may be judged to be more reasonable than M3. This example seems to illustrate this principle: if we postulate more entities at the same level (such as postulating B in addition to A), then this move would be blocked by the POP. But if we postulate some additional entities at a higher level (such as postulating F in addition to A, B, C, D & E) such that the overall scheme would become simpler or tidier, then this move should not be blocked by the POP.

We can point to some counterintuitive implications of POP. Consider the debate between phenomenalism (indeed, the solipsistic type) & realism about external world, and the debate between instrumentalism & scientific realism. The application of POP would make phenomenalism intrinsically preferable to realism about external world, and instrumentalism preferable to scientific realism.⁴ These are not results that many naturalists would be prone to accept. It is because it would put the burden of proof on the realists about the external world and about theoretical entities. If the battle is not then irretrievably lost, it would be an immensely harder one for the realists to fight. Of course, if we are sure that POP is the only rule relevant here, then the hard battle has to be fought. However, many would feel that such a distribution of burden of proof is not a fair one. This suggests that there are other rules which override POP in these cases.

The distinctive characteristic of these two debates is that they are about a more or less comprehensive worldview or ontology, & not about smaller scale competing explanations within an established or agreed worldview or philosophical system. Let me define OI of a worldview or ontology as the *ontological inventory* of the entities considered real in that worldview. For example, when I write OI(phenomenalism) = {red qualia, green qualia, ... , kinaesthetic sensations, auditory sensations, ...}, it means that the ontological

⁴ In general, all non-epistemic or skeptical explanations of all sorts of beliefs & perceptual experiences would be simpler or more economical according to POP, and hence preferable. This is also somewhat counterintuitive.

inventory of phenomenalism is the set of qualia, sensations, etc. So according to POP, if the inventory of one worldview is a proper subset of another worldview, the former is simpler than then the latter. Now $OI(\text{realism about external world}) = \{\text{red qualia, green qualia, ... , kinaesthetic sensations, auditory sensations, ..., tables, rocks, cats, ...}\} = OI(\text{phenomenalism}) \cup \{\text{tables, rocks, cats, ...}\}$.⁵ Since $OI(\text{phenomenalism})$ is a proper subset of $OI(\text{realism about external world})$, phenomenalism is simpler than realism about external world, & hence preferable on POP. Similarly, $OI(\text{scientific realism}) = OI(\text{instrumentalism}) \cup \{\text{protons, electrons, neutrons, etc.}\}$. (Remember that what is included in any OI is considered *real* rather than fictional.) The idea of ontological parsimony in POP can be called 'OI-simplicity.'

Let us define the fundamental inventory, FI, of a worldview as the set of the entity *types* considered as *fundamental and irreducible* in that worldview, symbolized by $FI(\text{worldview})$. Further define the function $n[FI(\text{worldview})]$ as the number of entries in that FI. We can then construct another notion of simplicity (FI-simplicity):

FI-simplicity Worldview_1 is simpler than worldview_2 iff $n[FI(\text{worldview}_1)]$ is smaller than $n[FI(\text{worldview}_2)]$. If $n[FI(\text{worldview}_1)] = n[FI(\text{worldview}_2)] = 1$, then the former is simpler if it postulates less individuals in their fundamental type of entity.

My suggestion is that considerations of FI-simplicity are at least as important, if not more important, than considerations of OI-simplicity especially when we evaluate worldviews. This would explain why instrumentalism is not intrinsically preferable to scientific realism. Consider their fundamental inventories: $FI(\text{instrumentalism}) = \{\text{tables, rocks, cats, dogs, moon, sun, stars, ...}\}$. Obviously, the list is almost endless. However:

$FI(\text{scientific realism before 1900}) = \{\text{hydrogen, helium, ... uranium [the fundamental chemical elements]}\}$. $n[FI]$ here is only around 100 $\ll n[FI(\text{instrumentalism})]$. This would explain why although postulation of a hundred types of atoms actually increases the OI-complexity, the scientific worldview is still considered simpler. It is because the myriad of objects and substances seem to be reducible to combinations of these atoms, or, in other words, the scientific worldview is FI-simpler than the instrumentalist worldview. At one stage, it was thought that $FI(\text{scientific worldview}) = \{\text{protons, neutrons, electrons}\}$ with $n[FI]=3$. People started to talk about the end of physics: the world became for them immensely simpler- of course it is FI-simplicity that they are considering.⁶ FI-simplicity is never lost sight of as is shown by the relief many scientists feel when the quark theory reduces the $n[FI(\text{scientific worldview})]$ again. So I suggest another rule is governing our explanation:

PFIS *Ceteris paribus*, adopt an explanation offered by a worldview which is FI-simpler.

According to our definition, metaphysical naturalism clearly has a strong commitment to realism about both the external world & theoretical entities postulated by modern science. Anyway, when the naturalists

⁵ I am assuming that the eliminativist position about sensations is not true.

⁶ Of course, even FI-simplicity is not the only constraint on theory construction. Physicists are later forced to postulate many more 'elementary' particles by experimental results, etc. This shows that empirical adequacy is all along a very important constraint: we should seek the simplest theory *adequate to the empirical data*.

arbitrate the debates between phenomenalists/instrumentalists and realists, the rule accepted by them seems to be PFIS rather than POP. At the very least, I contend that Nola's implicit assumption that POP is the most significant consideration with regard to simplicity in this issue is unwarranted. Moreover, as the progress in science shows, when we consider the question of worldview and the fundamental entities, FI-simplicity seems more important than OI-simplicity.

There is a good reason for this: consideration of the ontological inventory of a worldview alone would ignore the causal structure of that worldview because it does not spell out the causal relationships between the entities included in the inventory. However, a worldview typically consists of a hierarchy of causal or explanatory levels, the higher of which would be explained by the lower level. Unless we postulate an infinite regress of explanatory levels, sooner or later we would reach the fundamental level of a worldview, with respect to which all the other entities in that worldview are to be explained. However, the entities in the fundamental level would become unexplained explainer(s) of that worldview- the physical universe in naturalism & God in theism. A worldview may include more entities than another worldview, but it seems not so important to consider those who have already been nicely accounted for. It is more important to consider the simplicity or otherwise of the final level of unexplained explainers. Let us go back to the example of the mastermind of a murder. True, M4 postulates more things than M3. However, while M3 posits 5 uncoordinated actions of A, B, C, D & E as unexplained explainers, in M4 these actions are explained by the plan of F, the only remaining unexplained explainer. So that's why M4 may be preferable to M3.

But now the debate between naturalists and theists over the explanation of BD is a question of worldview. So FI-simplicity is more epistemically relevant here than OI-simplicity. Let us now evaluate the debate from this perspective.

The Simplicity of Theism Relative to Naturalism

We need to distinguish between reductive naturalism and non-reductive naturalism. The former position asserts that the fundamental entities in physics are the only irreducible entities in reality. Sensations, minds, selves, etc. are either eliminated or reduced. However, non-reductive naturalism does not think all of these are either eliminable or reducible: some of them are irreducible. Consider their fundamental inventories:

FI(reductive naturalism) = {several kinds of quark, electrons, ...}

FI(non-reductive naturalism) = {several kinds of quark, electrons, ..., sensations, minds(?), ...}

FI(theism) = {God}

It seems clear that theism is FI-simpler than reductive naturalism, which is FI-simpler than non-reductive naturalism. So if we use PFIS instead of POP, as is more appropriate here, a theistic explanation is actually simpler than MNE, & hence preferable. The tension between reductive naturalism and non-reductive type is also instructive. True, the reductive variant is FI-simpler but the non-reductive naturalists argue that the

forces of our experience cannot be denied. However, the reductive naturalist charges that non-reductive naturalism harbours 'mysterious' entities & urges it to return to the pristine simplicity of reductive naturalism. On the other hand, the non-reductive naturalist accuses the reductive naturalists of reductionism, scientism & inadequacy to our experiences.

It seems to me the complaints from both sides have some weight. However, theism seems to be the worldview which can accommodate nicely the awkward facts for a reductive naturalist while achieving unsurpassable FI-simplicity. Indeed if FI-simplicity is more significant than OI-simplicity, then we can formulate this rule:

Ceteris paribus, adopt an explanation offered by a worldview which is FI-simpler even if the explanation is less OI-simple.

Because theism is FI-simpler than both types of naturalism, it follows that theistic explanation of BD is intrinsically preferable to MNE, ceteris paribus.

Moreover, we need to consider the number of instantiations of a fundamental type. Concerning FI(theism), there is only one type & also only one individual. In reductive naturalism, there are several fundamental types & each type has an enormous number of instantiations.⁷ So in this aspect, theism is also simpler than naturalism. Swinburne also argues that the description of God is very simple because God possesses His essential attributes to infinite degree. He thinks that “hypotheses attributing infinite values of properties to objects are simpler than ones attributing large finite values. For we can understand ... the notion of infinite velocity ... without needing to know what the googleplex is (10^{10} to the power of 10).” He argues that the scientific practice supports this point. For example, scientists “preferred to postulate that light had an infinite velocity rather than a particular finite velocity ... until data were found that were very improbable on the former hypothesis” (Swinburne 2004, 55).

Others actually argue that God can be characterized by a single predicate like 'perfect' (Morris) or 'super-eminent' (Schlesinger). Swinburne defines God as a being who “exists necessarily and eternally,” & is a “person essentially bodiless, omnipresent, creator and sustainer of any universe there may be, perfectly free, omnipotent, omniscient, perfectly good, and a source of moral obligation” (Swinburne 1994, 125). The “postulation of a God of infinite power, knowledge, & freedom is the postulation of the simplest kind of person that there could be... the existence of the universe is less simple, & so less to be expected *a priori* than the existence of God” (Swinburne 2004, 150-151).

He further suggests that all these properties of God can be subsumed under a very simple concept: pure limitless intentional power.⁸ If an individual has such power, “all his causing is intentional; everything

⁷ This would also raise the question why so many individual things do belong to the same type, sharing identical properties. Naturalism cannot provide any answer to this question, but theism can make this intelligible.

⁸ Swinburne also believes that his concept of God is compatible with the Anselmian notion of God as the “greatest conceivable being” (Swinburne 1994, 158), which is an evaluative property supervening on the natural property of having pure limitless

which he brings about he means to bring about, & hence he acts only on reason. I understand by the power being limitless that all events other than that individual existing that occur only do so because of the current exercise of that power” (Swinburne 1994, 151). For example, since God is limitless, He cannot be limited by any kind of ignorance, lack of power, external constraints, space or matter. Hence God must be bodiless, omnipresent, perfectly free, omnipotent, omniscient & so on. (The details of this derivation would not detain us here; see Swinburne 1994, chapter 7.)

This shows that God is an extremely simple being, or even the simplest possible being. “Pure limitless intentional power entails omnipotence, omniscience, and perfect freedom in my senses. These properties fit together in such a way that their possessor is a person of the simplest kind there could be” (Swinburne 2009, 498).⁹

In contrast, there “is a complexity, particularity, & finitude about the universe which cries for explanation, which God does not have” (Swinburne 2004, 150). Swinburne first notes that our physical universe is “indeed a rather complex thing. ... There are lots & lots of separate chunks of it. The chunks each have a different finite & not very natural volume, shape, mass, etc.” Of course, naturalists would point out that the universe as it now stands evolved from a much simpler state. “But the earlier state still needed to have had some complexity to it- either it had to consist of extended matter-energy or of an unextended point with laws of nature that were such as to give rise to a complex material universe... Either way, this starting point would be a finite thing with certain ways of developing built into it & no reason why those particular ways of developing should be built into it, rather than any other ways. There could have been no laws of nature & so complete chaos, or laws that soon ensured the complete elimination of the universe” (Swinburne 2004, 150).

Moreover, “if there is no God, it is immensely improbable ... that each of the innumerable many fundamental particles, or rather chunks of compressed energy) immediately after the Big Bang should just happen to exist. And it is even more improbable that each such chunk should behave in exactly the same fairly simple ways as each other chunk ... while there are fairly simple laws, their instantiation in each of innumerable many chunks of matter-energy would be an enormous coincidence unless caused by some external agent. And even if such an enormous coincidence occurred by chance, it is immensely improbable that those laws should be such as together with the boundary conditions of the Universe ... should have given rise to human bodies... the laws might just as easily have given rise to robots. Consciousness is totally

intentional power.

⁹ Swinburne’s view should be distinguished from the traditional doctrine of God’s absolute simplicity, which is a view not easy to understand. One exposition of this view says that it “denies the possibility of real distinctions in God. It is ... impossible that God have any kind of parts or any intrinsic accidental properties or that there be real distinctions among God’s essential properties or between any of them & God himself” (Stump & Kretzmann 2009, 173). For a critique of this traditional view, see Plantinga (1980). For a comparison of these two views, see Robinson (2017). Swinburne just thinks that this traditional doctrine “becomes quite unnecessary once we abandon Platonism” (Swinburne 1994, 162).

improbable, unless there is a creator who gave it first to the higher animals & then to us” (Swinburne 2020, 27).¹⁰

The number of fundamental types of explanation also influences the estimate of simplicity. For example, if we need several fundamental forces which operate according to different, unrelated equations, then we have several fundamental types of scientific explanation at least. It seems to me we also favour a worldview which has fewer types of fundamental explanation. This is the drive towards the search for a Grand Unified Theory. We can also evaluate the relative simplicity of theism from this perspective. If personal or intentional explanation is irreducible to scientific explanation, then theism is arguably simpler in this aspect. It is because it only countenances one fundamental type of explanation: personal explanation because the existence of natural laws which make scientific explanation possible can also be explained by the personal act of God. (See Swinburne 2004, chapter 8.)

I agree with Swinburne that “theism is a very simple hypothesis indeed. It postulates just one substance, God, having essentially the simplest degree of power, & lasting for the simplest length of time, all the other essential divine properties follow from that” (Swinburne 2020, 25). It is “simpler ... than any inanimate hypothesis which could be constructed” (Swinburne 2020, 28). My conclusion is that on various counts theism is simpler than naturalism, & hence theistic explanations are preferable over MNE of BD.

Comparison of Explanatory Breadth

I agree with Nola that explanatory breadth of a hypothesis is an important consideration, but I do not think that when a really broad range of data are brought into view, that would really favour naturalism over theism. Nola mainly considers the explanation of biological facts, & he strongly believes that naturalistic evolution can provide a much better explanation than theories like creationism or intelligent design (ID) which are associated with theism. Of course I cannot go into the details of this debate, which is a huge & extremely controversial topic. My considered view is that over the issues of the origins of life & irreducible complexity, the explanations provided by ID are at least not unreasonable. I even think that there is a reasonable case for the superiority of theistic explanations over naturalistic evolution here.¹¹ Moreover, MNE of BD already presupposes the evolution of mind & rational consciousness. I also believe that even if the argument from

¹⁰ He goes on to argue that the possibility of a multiverse would not affect the argument above (Swinburne 2020, 27-28).

¹¹ For concise introduction to these arguments, see Michael Behe’s & Stephen Meyer’s articles in Ruloff & Horban 2021 (chapters 5 & 6). Personally, I find the famous synthetic chemist James Tour’s critique of chemical evolution most impressive. Meyer has also extensively defended his arguments for ID in Meyer (2021).

consciousness together with the argument from reason may not provide a conclusive argument for God, they at least give significant support for this comparative judgment:¹²

$P(\text{mind \& rational consciousness/theism})$ is greater than $P(\text{mind \& rational consciousness/naturalism})$

This is only saying that the emergence of mind & rational consciousness is more to be expected given theism than given naturalism. This is not claiming that the existence of mind & rational consciousness is incompatible with naturalism or that they are *completely* inexplicable in a naturalistic world. But surely even many naturalists feel that the emergence of consciousness in a completely materialistic world is nothing short of a miracle (see Colin McGinn & Galen Strawson- they are sometimes called mysterians by other naturalists).

To sum up, I think if we consider “a wider array of facts” related to BD such as origins of life & irreducible complexity, & the emergence of mind & rational consciousness, we should prefer the theistic theory over the naturalistic theory. In fact, we can further extend the application of this criterion beyond biological & related facts to physical facts, & it seems permissible to bring in the beginning of the universe & the phenomena of fine-tuning as well. (In fact some theists would prefer not to support ID & accept theistic evolution- they would like to provide support for theism merely on the basis of physical facts rather than biological facts. This strategy is also acceptable to me.)

It seems to me that T1 can explain these data much better than MNE. So Nola’s claim that the theistic explanation “lags behind [the naturalistic explanation] badly on this” criterion of explanatory breadth seems to be unwarranted, at least before many controversial & uncertain judgments can be justified.

The above argument can be strengthened by a more detailed examination of the PNE of BD. Let us assume the rough correctness of the story told by this PNE which includes CSR as a major part. However, we can further ask, is this story more likely to happen in a theistic world or in a naturalistic world? Matthew Braddock has written an interesting article titled “An Evidential Argument for Theism from the Cognitive Science of Religion.” In fact he argues that “our supernatural disposition- as understood by any of the main theories on offer in CSR- is more surprising & improbable given naturalism than theism & thus serves as evidence for theism over naturalism” (Braddock 2018, 172). In general CSR can help us understand why belief in supernatural agents or BD is cognitively natural, but six features of our supernatural disposition do

¹² One earliest formulation of the argument from consciousness is contained in Swinburne (1979, chapter 9). For a concise introduction to this argument, see Moreland (2003). For an elaboration of this argument, see Moreland (2008; 2009) & Swinburne (2019). For a defense of the argument from reason, see Reppert (2001).

appear to be somewhat surprising (or at least far from guaranteed) in a naturalistic world:

- (i) Humans are theistically biased: “*humans are disposed to believe in non-human, invisible, disembodied, immortal, super-powerful, super-knowing, super-perceiving, infallible, morally interested, punishing/loving, causally active, & minded agents (with beliefs, desires, intentions, character, & freewill) who possess creator or designer status*” (Braddock 2018, 178).
- (ii) “The assorted collection of cognitive mechanisms underlying natural belief in supernatural agents evolved by natural selection & gave rise to it in a causal-mechanical (non-evolutionary) way” (Braddock 2018, 180).
- (iii) functionless byproduct: “Natural belief in supernatural agents originated as a byproduct & persisted & proliferated despite making no positive contribution to reproductive fitness” (Braddock 2018, 181).
- (iv) exaptation: “Natural belief in supernatural agents originated as a byproduct but proliferated because it subsequently made a positive contribution to reproductive fitness” (Braddock 2018, 181).
- (v) hybrid: “Natural belief in supernatural agents originated & proliferated because it subsequently made a positive contribution to reproductive fitness” (Braddock 2018, 181)
- (vi) theistic progression: see below

Braddock believes that “each of these six features is individually surprising given naturalism but less so given theism. Hence the fact that most or several of these features jointly obtain together is even more surprising given naturalism than theism” (Braddock 2018, 182). I cannot go into his detailed arguments about each of the above six points, but let me discuss more the idea of theistic progression: “In the course of human history, our supernatural disposition has progressively disposed us more to a theistic-like God than to other alternative supernatural agent(s)- that is, during the monumentally important past 12,000 years when the overwhelming majority of humans (more than 99%) have lived their lives” (Braddock 2018, 181). I agree, & it seems to me that this progression is even more pronounced in the past 2000 years, & especially spectacular in the last 400 years since the scientific revolution.

For example: “Empirical theorists such as Rodney Start (2007) & Ara Norenzayan (2013) ... have observed a marked historical progression & increasing convergence upon belief in a theistic-like God... The progression is not uniform across cultures nor perfectly linearly across time- ... but it is nevertheless a marked progression & salient global pattern in recent history. We observe the increasing spread of so-called ‘big gods’ or ‘high gods’ after the dawn of the agricultural revolution 12,000 years ago & the increasing prevalence of the Abrahamic God during the past 2,500 years. Now there are currently more than three billion believers in the Abrahamic God & the total number of believers in a *theist-like* God runs significantly higher. We can also detect the trend of theistic progression in unexpected places such as India, where the general population of Hindus have come to the view their main god(s) (Brahman, Vishnu, Shiva) as possessing many attributes that are quite similar to the attributes of the Abrahamic God” (Braddock 2018, 190). Among many schools of Hinduism, Western scholars tend to favor the monistic Advaita Vedanta, but this is not in fact very popular among the common people in India.

So even if “many prehistoric humans & entire cultures have lacked one or both [theistic belief or concept],”

we can say that “presently the vast majority of people believe in a theist-like God & many more are at least conceptually familiar with such a God... it is plausible to suppose that the vast majority of humans who have ever lived have possessed the concept of a theist-like God, if they have not outright believed in such a God.” Braddock believes that this trend will continue “in the very near future, given the continued growth of the human population, global communication, & the rapid growth of Christianity & Islam in the so-called ‘global south.’” So he raises this question: “Why are theistic-like gods so cognitively & culturally successful?” (Braddock 2018, 191) For Nola, BD can mean any kind of God or spiritual entity, & a more or less theistic god is only one possibility among many divinities. From the naturalistic perspective, all these divinities are illusory & the PNE has no reason to favor one kind of divinity over others. Hence there is no reason to expect any theistic progression. In contrast, if the emergence of a vague form of BD is part of the plan of the Creator, then this kind of theistic progression is more to be expected. So I agree with Braddock that this fact is “surprising given naturalism but less so given theism” (Braddock 2018, 182). Hence the fact supports theism relative to naturalism.

Comparison of Explanatory & Predictive Novelty

Nola emphasizes that it is hard to derive novelty from the God hypothesis alone apart from the supplementation from current science, & seems to suggest that the theistic hypothesis is thereby shown to be inferior to naturalism. First of all, in fact his formulation of the criterion also includes the importance of offering “an explanation for the first time of old well-known facts, over a theory which does neither.” If, as suggested above, theism can explain the existence of the physical universe, the laws of nature & fine-tuning while naturalism can merely presuppose these facts as the basis of explanations of everything else, then theism seems to win over naturalism, which cannot explain these unexplained explainers in their worldview (surds), according to part of this criterion.

Second, we can query whether Nola’s discussions here can really vindicate naturalism itself, because what he in fact points to is how the theory of evolution coupled with CSR, etc. (E_H) would “yield predictive novelty in the sphere of biology.” This may vindicate E_H in contrast with bare theism or T2 at most, but, as pointed out above, T1 has in fact already incorporated E_H . So we may equally say that we can derive novel facts from T1. The basic problem of Nola here is doing comparison at the wrong level. If we accept T1 which incorporates much of E_H as far as it is supported by evidence, then T1 is open to whatever novel predictions which can be derived from E_H . (But this reply may be subject to the objection of irrelevant conjunction, which will be discussed below.) This criterion may strengthen proximate NE without distinguishing between T1 & metaphysical NE. But Nola’s task should be to vindicate the superiority of MNE over T1 rather than the superiority of PNE over T1.

Third, we can also point out that the same objection can be applied to naturalism as well. Is it really possible to derive novelty from the naturalistic hypothesis *alone* apart from the supplementation from current science? It does not follow from the existence of a physical universe alone that some form of evolution would occur or conscious beings who believe in gods would emerge. It is equally difficult to see how a bare naturalism would predict novel facts. The reason is that while naturalism commits to the existence of *some* form of physical universe, it is basically a philosophical position which leaves open what kinds of laws or boundary conditions would obtain in our particular universe. Given the existence of BD, the difference between naturalism & theism is that the former, but not the latter, must exclude the explanation of BD with respect to direct divine intervention. At most we can say that naturalism would predict some kind of naturalistic processes as sources of BD to a stronger degree than theism would. But this is not to say that naturalism itself can predict the exact naturalistic processes which lead to BD.

The above is sufficient to rebut Nola's criticism, but I further argue that the application of the Criterion of Predictive Novelty may in fact favor theism over naturalism. Let us first make the distinction between Superficial Religious Belief (SRB) & Deep Religious Belief (DRB).

SRB: it is a mere intellectual assent to the idea that there exist some gods. This belief has no or only weak connection to the believer's emotions, behaviour, or self-development.

DRB: it includes an intellectual assent to the idea that there exist some gods, but this belief also has strong connection to the believer's emotions, behaviour, or self-development. In some cases, this religious belief (BD) is tied up with many profound religious experiences of the believer throughout his life. These experiences transform his self, & helps him to find his true self or the meaning of life.

Nola's discussions focus on SRB & seems to suggest that BD or SRB can be treated mainly as an isolated part in a person's life. Of course, there are many cases of SRB, but it is typical of religious belief that they can & do develop into many cases of DRB which may be costly to the believers. Nola's bias towards to the cognitive side is understandable given the extensive use of cognitive science & the modularity assumption which is prevalent in contemporary CSR.¹³ However, given CSR & HADD, etc., we may expect some form of BD, especially SRB, but the widespread emergence of DRB would be surprising. So the latter is a "novel

¹³ For a critique of the intellectualist or cognitivist bias of CSR, see Smith (2009).

fact” more to be expected given theism than given naturalism. So the theistic hypothesis is thereby shown to be superior to naturalism in this aspect.

I have written this before: “Evolutionary psychologists speculate the existence of a Hyper-sensitive Agency Detection Device (HADD) or some innate Theory of Mind (ToM). Well, all these are possible but then the experience of God should be akin to the experience of very powerful aliens. Should we expect the mystical experiences of God in our souls? Should we expect TEs (theistic experiences) can at the same time quench our deep-seated craving for meaning and wholeness? Moreover, concerning these existential experiences, the most obvious fact is that they seem to complicate our lives unnecessarily. The time and energy ‘wasted’ over the quest for meaning can better be used to hunt a deer or find a mate, isn’t?” (Kwan 2011, 290)

Similarly, religion seems to have no obvious connection to survival: “the universality of supernaturalistic belief is an evolutionary puzzle. Most universal human beliefs (the belief in ‘other minds’, ...) have some simple, immediately evident connection with evolutionary fitness, but a human being’s being without supernaturalistic beliefs does not decrease his or her evolutionary fitness in any obvious way” (van Inwagen 2009, p. 129). Another evolutionary psychologist comments: “these beliefs really *are* incredible... from the standpoint of evolution, it is hard to see how having such beliefs could lead to increased reproductive success” (Bloom 2009, p. 119). Especially when we are talking about mystical experience, evolutionary psychology does not look like a promising hypothesis. “Evolution depends on leaving fertile descendants, but mystics and spiritual adepts commonly vow celibacy” (Beauregard and O’Leary 2008, p. 206).

Moreover, DRB often lead to religious commitments which are costly in terms of evolutionary fitness. Suppose the need for social stability is best secured through religious beliefs. It is still very hard to see how religious beliefs in *very* primitive societies contributed to the survival value of those societies if *we suppose the beliefs were false, or mostly false*. Time used to propitiate the spirits or ghosts could be spent producing more food, weapons, etc. Moreover, some religious practices, such as celibacy, sacrifice of virgins, animal sacrifice and grain offerings, would even directly *reduce* our evolutionary fitness. So Wenegrat admits that “the dual perception of God as reciprocal altruist and universal parent directs beneficent acts beyond the interpersonal limits predicted by the two sociobiologic theories, kin-directed and reciprocal altruism. This is ... the only way ... in which religious beliefs produce large-scale deviations from behaviours predicted by sociobiologic models” (Wenegrat 1990, pp. 71-72). Wenegrat is referring to the help offered by religious persons to people biologically and socially totally unrelated. For example, Mother Teresa’s caring for the dying, especially those who are poor, is completely futile from the sociobiological standpoint: whose genes this activity helps to propagate?

Third, we can ask why it should be religion and not something else which can play the same role in the evolutionary explanation. In the past, virtually every society has been and is religious, and it appears that a

society could not have flourished without religion. But this is not a necessity. Although I argue that the contemporary society is by no means non-religious, it does seem that most European societies are basically secular, and they manage to survive pretty well. Since evolution is very versatile, why shouldn't it throw up a secular society in early times which use non-religious means to secure solidarity or cooperation or the like? Atran notes that many "cognitivist accounts of religion ... failed to explain why people make costly commitments to some counter-intuitive beliefs... but not to others" (Richmond 2010, p. 31). There are a host of such ideas that do not, and seemingly cannot, become the object of religious devotion despite having these same characteristics: the tooth fairy, Mickey Mouse, Batman. This is sometimes called the Mickey Mouse Problem.

The explanans of the PNE include psychophysical laws, the structure of the human psyche, social nature and experience of human beings, etc. but these in turn need to be explained. DRB is also closely connected to the depth dimension of human experiences like moral or aesthetic experiences. In my earlier book, I have surveyed the unique rainbow of experiences in human life: interpersonal, moral, aesthetic, existential, intellectual, religious & so on. I argue "that the rich deliverances of the rainbow of experiences, as integrated in the theistic worldview, do not lead to a double vision, but a unitary beautiful world in which we can find our spiritual home. The beauty and coherence of the rainbow of experiences manifest a kind of consilience within theism" (Kwan 2011, 284). In contrast, the naturalistic explanations of the rainbow of experiences tend to be complicated and ad hoc. So the postulation of God at the same time satisfactorily explains SRB, DRB, numerous religious & theistic experiences, as well as the structure of human psyche. This suggests another explanatory merit of theism: it brings to light "novel facts" like easily overlooked significance of old facts such as our human experiences, but still on the whole simpler than the naturalistic scheme. Of course, I cannot repeat my arguments in a whole book here. But if my arguments there are plausible, this would surely undercut Nola's criticisms here.

Comparison of Progressive Explanatoriness

Nola's objection from Progressive Explanatoriness seems closely connected to his earlier objection from Predictive Novelty. So he asks, "Which theory, F or E_H, was employed in the discovery that the human mind contains a cognitive device, HADD, for the detection of agency? It was not F but E_H." But again his problem is comparing at the wrong level. As said above, metaphysical naturalism itself does not predict anything specific about science. It does predict that some kind or other naturalistic processes are involved, but T1 also predicts pretty much the same thing. So we can equally say that metaphysical naturalism "merely accommodates itself to such new facts which are relevant to it but in which it plays no role in uncovering these new facts." The discovery of HADD does not need to assume or presuppose naturalism. Only after it is "discovered", naturalists also understand it in the context of naturalism, & form the hypothesis of MNE. Nola should be comparing T1 with MNE, but what he actually does is comparing an unspecified F with E_H. "Discoveries about how a supposed God makes himself apparent to us humans ... are in fact made in a

rival progressive programme, E_H,” Nola’s requirement of F to anticipate new scientific facts is misplaced- it reflects again his confusion of explanatory levels.

But perhaps Nola has an objection to the way T1 incorporates E_H into theism, as suggested by van Inwagen & others. His criticism is that the incorporation of CSR, etc. into the supernatural theory is a kind of mere conjunction, which is also a kind irrelevant conjunction. Suppose the heliocentric theory (HT) is justified by the deduction of many empirical facts (EFs) from this theory. So HT => EFs. According to the Deductive-Nomological Model of explanation, HT helps to explain EFs. However, consider the statement TK: “Tokyo is the capital of Japan.” Just form the conjunction (TK & HT), & we find that T & HT => EFs. Hence we can also say that this conjunctive hypothesis explains the empirical fact, but there is something wrong here. It is because obviously TK has whatsoever no role in the explaining of EFs! Moreover, in this way we can form explanatory hypotheses too easily! In fact TK can be replaced by a false statement like TK’ “Tokyo is the capital of China” without affecting the explanatory power of (TK’ & HT).¹⁴

This is a real problem for the DN Model, but here Nola seems to have a misunderstanding of van Inwagen. His idea of incorporation of a NE into the supernatural theory should not be understood as incorporation by mere conjunction. If it is mere conjunction of theism & E_H & it is the latter which does all the explanatory work, then this kind of incorporation does seem unmotivated. However, no matter what the PNE postulates, the explainers of BD there are surely not the ultimate explanation- they necessarily raise the further question about the origin of these explainers themselves, & here both theism & metaphysical naturalism may provide an ultimate explanation. Both worldviews purport to explain everything. If scientific study helps us to understand the proximate origins of BD, this only provides further facts for both theism & naturalism to explain. But it cannot be just assumed that naturalism would do a better job here- in fact many arguments above seem to suggest otherwise. If theism can provide a better explanation of the explanans postulated in the PNE, then this can improve the overall intelligibility of the world. Surely this is not irrelevant. This would be the case if Braddock’s argument discussed above is successful- some facts of CSR may be more likely given theism rather than naturalism.

We can compare the problem here with Swinburne design argument from order. For naturalism, the existence of natural laws is a brute fact, but arguably this is more intelligible in a theistic worldview. This provides an argument for theism. There is no need to put theism & the existence of natural laws on the same level to compete. The competitor to theism is naturalism rather than the existence of natural laws itself.

¹⁴ See Glymour (1980) for discussions of this “tacking problem.”

Nola's criticisms of Justin Barrett are also unpersuasive. Barrett "claims that the divinity can contemplate all possible worlds & then make one of them actual, viz., the one in which evolution occurs & which culminates in us humans with HADD-like capacity to believe in, & love, God" (Nola 2018, 89). Nola seems to miss the explanatory power of this hypothesis. The ultimate question to ask about BD is that out of the infinite number of all *possible* worlds, why does an *actual* world which allows BD becomes real, & not the many more other possible worlds which don't? Barrett's answer is that since God wants humans to love Him, but loving Him presupposes the possibility of believing in Him, He has a reason to make actual the possible world in which evolution occurs & which culminates in humans with HADD-like capacity to believe in God. Since God is omnipotent, this possible world indeed becomes actual. This hypothesis provides a personal explanation of our world. For naturalism, there is no particular reason to choose from the following kinds of possible worlds:

U1: a physical universe not governed by natural laws;

U2: a physical universe governed by natural laws which do not permit the emergence of either life or mind;

U3: a physical universe governed by natural laws which permit the emergence of life, but do not permit the emergence of mind;

U4: a physical universe governed by natural laws which permit the emergence of both life & mind, but in that world no religious beliefs exist;

U5: a physical universe governed by natural laws which permit the emergence of both life & mind, & in that world religious beliefs exist; but there are only SRBs without DRBs;

U6: a physical universe governed by natural laws which permit the emergence of both life & mind, & in that world religious beliefs exist; there are both SRBs & DRBs.

Only U6 is our actual world. It is obvious that naturalism as such is compatible with all the above possibilities, & so $P(U6/\text{naturalism})$ cannot be said to be very high. In contrast, since the goal of a loving relationship between humans & God is a worthy one, it is at least not likely for God to have such a goal. So $P(BD/\text{theism})$ seems greater than $P(BD/\text{naturalism})$. As argued above, if we consider DRB alone, $P(\text{DRB}/\text{theism})$ should be even more greater than $P(\text{DRB} / \text{naturalism})$. At least I am confident to say that there is no good reason to believe that $P(\text{DRB} / \text{naturalism})$ is greater than $P(\text{DRB} / \text{theism})$. (Nola may object to this claim by emphasizing that the theistic explanation here appeals to divine intentions which are not independently testable, & this renders the theistic explanation methodologically flawed. I will deal with this objection in the next section.)

It is indeed true that “a HADD-like capacity to detect God does not necessarily imply that what is detected is also loved,” but Barrett is only talking about the *capacity* for a loving relationship with God, & theists have of course all along maintained that God has also given us the freedom to choose how to exercise this capacity. So the existence of non-theists or even anti-theists is not incompatible with this capacity. A son who *in fact* hates his father cannot be said to have no *capacity* for loving his father whatsoever. The quote from Hume about God’s alleged ulterior motive also betrays a poor understanding of theology. If God desires to build up a loving relationship with humans, does it mean that God is psychologically insecure & that He would become psychologically imbalanced if humans do not love Him? Is God somehow addicted to humans’ praising Him? Of course not! Since God is good & loving, He would like to share the best gift with humans which would also make humans supremely happy (or blessed). A loving relationship with God, the Source of all good, is exactly the best gift which God can possibly give us! Moreover, since God is the greatest conceivable being, there could not be any kind of praising God which is untruthful. So Nola’s portrayal of God as a being inflicted with the “restless appetite for applause” is simply a caricature! (Moreover, I am not completely averse to the idea of God having “human passions” as such, but this is not the place to go into the theological debate between passibilism & impassibilism.)

Comparison of Absence of Untestable Assumptions

Nola argues that the theistic needs to invoke untestable auxiliary hypotheses about God’s intention or desire to create a world with creatures like us, but there is no independent evidence for God having such intentions. Since such untestable assumption is necessarily involved in the theistic explanation, it violates the Criterion of the Absence of Untestable Assumptions.¹⁵ I am a bit puzzled by this objection because Nola earlier says, “In this paper matters to do with evidence will be set aside... Of course we would not want to have explanations whose main causal hypotheses fail tests. But we can look for *potential* explanations” which are distinguished from actual explanations which are in fact true. “In contrast a *potential* explanation is one in which the following counterfactual holds: if what did the explaining *were* to be true then a satisfactory explanation *would* be provided.” He again emphasizes that his focus will be on potential explanations, & “not the equally important issue of their evidential support” (Nola 2018, 77).

Nola is correct to say that the existence of God alone cannot fully explain the emergence of BD, & indeed a full theistic explanation needs to include an appropriate divine intention. But then according to his declared procedure, he should consider this potential theistic explanation of a God with the appropriate divine intention, & then ask this question: *were* this potential theistic explanation to be true, *would* then a satisfactory explanation of BD be provided? Moreover, “matters to do with evidence” for this theistic

¹⁵ Sober articulates a similar objection to the design argument. He insists that we must have an idea of what kind of action we would expect the designer to perform before the design argument can be deemed valid. In other words, evidence for God’s preferences must be given independently.

explanation (which includes the assumption of divine intention) should “be set aside.” So Nola here seems to contradict his claim that he is *only* considering a potential rather than actual explanation.

We also need to think carefully about the force of this Criterion of the Absence of Untestable Assumptions. It seems clear that the fewer untestable assumptions in a theory, the more we can be assured about the truth or falsity of that theory. But if we insist that no valid theory can contain untestable assumptions, then this criterion may be too harsh because many respectable scientific theories may not be able to satisfy it. Consider the most fundamental theory in physics like the quark theory, which is used to explain all other observations & experimental results. The justification of the quark theory is provided by its ability to provide the best explanation of all these observations & experimental results. It is unclear how else the scientists are supposed to test *independently* the existence of quarks or their colors & spins. Sometimes independent testing is impossible due to the limitations of circumstances. For example, Putnam has discussed cases when astronomers postulate a dark companion star to another observable star. This postulation is necessary simply because without this assumption, the orbits of that observable star apparently violate the laws of physics. But the problem can be fixed by the postulation of a dark companion star, but there is no independent evidence for this dark companion star. That is why it is called “dark.”

We can also point out that many processes or events postulated by CSR can't be independently tested as well because they refer to events which were supposed to happen long time ago, & many of them simply left no trace for us whatsoever. For example, when Hilary Putnam discusses Edelman's evolutionary account of intentionality, he criticizes “the long detour through the at-present totally unproved speculations about our evolutionary history” (Putnam 1992, 34). In fact David Sloan Wilson honestly admits that “the study of culture from an evolutionary perspective is still in the rank speculation stage” (Wilson 2009, 320). A neuroscientist points out that stories in evolutionary psychology are “nontestable ... We simply do not know what early humans thought about many ... questions because they left so few artifacts” (Beauregard and O'Leary 2007, 208). Of course, we cannot deny that the CSR theorists have been doing empirical work & making progress in the past decades. The assessment of the empirical credentials of various CSR theories also varies even among the experts. However, the earlier quotes seem to suggest that there may be intrinsic limitations about our knowledge of what *actually* happened in our evolutionary past, which may be difficult, if not impossible, to overcome. At least even some practitioners admit that “CSR and related fields of research are still in their pre-paradigmatic stage” (Visala 2011, 11). Anyway, it seems safe to say that many *current* theories of CSR do contain many untestable assumptions.

In fact, Nola does not discuss this point & fails to apply his criterion to the naturalistic story. He just presses the objection from untestable assumptions on the theistic story. He seems to adopt a double standard here. If Nola is consistent about his declared policy, then the evidential issues about both the naturalistic & theistic

stories need to be set aside. If Nola is not contented with claiming that his proposed NEs are *merely* potential explanations, then he needs to argue with more empirical evidence for the claim that his favored theories of CSR do NOT contain untestable assumptions. He also needs to clarify the status & force of this criterion.

A further reply to Nola can be made by considering Swinburne's *a priori* approach to the assessment of the likelihood of various divine intentions. Surely we cannot provide independent *empirical* evidence for divine intentions, but Swinburne's approach seems to be able to bypass this problem to a significant degree. Swinburne acknowledges that the existence of God as such may only provide merely a partial explanation of certain evidence, e. It needs to be conjoined with an intention to bring about e in order to provide a full explanation of e. So the value of $P(e|h)$ will depend on how probable it is that God will have that intention. Of course we may take h as "there is a God who had the intention of bringing about e (such as a universe which contains rational humans," and then h would provide a full explanation of e. In this case, $P(e|h)=1$ (because God is omnipotent), but for Swinburne this would make h more complicated & hence decrease its intrinsic probability.

So Swinburne prefers to define the theistic hypothesis, h, as the existence of God, the person who possesses pure limitless intentional power. But Swinburne is a moral realist who believes that *some fundamental* moral truths are objective truths- in fact necessary truths independent of God's free will. Since God by definition is essentially perfectly good, His intentions must also be constrained by moral truths, & hence we can have some kind of rational access to the likelihood of various divine intentions on the basis of "moral intuitions about what a perfectly good God would do" (Swinburne 2004, 151). "So God will inevitably always do the best or equal best action, or if there is no such action, at any rate an action of the best or equal best kind, & otherwise some good action; but he would never do a bad action" (Swinburne 2020, 25). If there is before God a choice of n equal best incompatible actions (or kinds of action), the probability that he will do any particular one of these is $1/n$. Of course this is only a rough estimate because Swinburne admits that "our views of moral goodness are limited" & "we cannot often give more than the roughest of values to the probabilities that I discuss" (Swinburne 2004, 151).

Interestingly, provided with this apparatus, Swinburne is able to derive the estimate of the probability of God creating the physical world which contain free persons like us. First, God has strong reasons to create finite free agents because it is a great good. In fact Swinburne claims that this is "one kind of great goodness which God himself does not possess" (Swinburne 2020, 26), because God, unlike humans, is not free to choose between good and evil. "So, if there is a God, we have very good reason to suppose that there will be persons who have ... that freedom. But ... they may cause great evil. So, it cannot be a unique best action to create such persons, but in view of the unique kind of goodness which they would possess, surely it must be an equal best action to create such persons... But if God is to create us, he must provide a universe in which we can exercise our choices to benefit or harm ourselves & each other. We can only do that if we have bodies... But only if there are comprehensible regularities which we can discover will there be ways in

which we can discover will there be ways in which my doing this or that will make a predictable difference to me or you” (Swinburne 2020, 26).

To sum up, in view of the situation of two equal best acts (create free agents or not), “we should suppose the logical probability that God would create such creatures to be $\frac{1}{2}$.” But since free creatures require a physical world, & God may have other reasons to create the physical world with regularities, “so perhaps the probability that God would create a physical world might be greater than $\frac{1}{2}$ ” (Swinburne 2004, 151). It is also very plausible to think that God would almost certainly endow humans in this world to have the chance of both SRB & DRB. So even without independent empirical evidence, it seems possible to form an estimate of the probability of the divine intention to create this world of us, & this probability is not low- in the neighborhood of $\frac{1}{2}$. In contrast, the discussions above show that $P(U6/naturalism)$ cannot be very high- it is likely to fall well below $\frac{1}{2}$. So if Swinburne’s arguments sound plausible, then the judgment of $P(BD/theism)$ being greater than $P(BD/naturalism)$ seems rationally defensible even without independent empirical evidence. Nola’s criticisms are again unsuccessful.¹⁶

Conclusion

According to the proper understanding of the criteria often used in the comparative assessment of scientific theories, Nola’s claim that naturalistic explanations of religious belief have the edge over non-naturalistic “folk” explanations is unwarranted. I have provided reasons why the reverse seems to be true. So naturalistic explanations of religious belief do not really lead to the debunking of religion, & they do not show that the religious “folk” theories have the wrong causal etiology for religious belief.

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¹⁶ “One problem is that HADD seems not to be the best way in which an all-powerful divinity could get humans to believe in him. HADD is unreliable & a more reliable detection device might have been in order if we are supposed to detect him”- deal with this objection later.

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