How to End the Mysticism Wars in Psychedelic Science

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Post-print (authors' accepted manuscript).
Published in Rob Lovering (ed.), *The Palgrave Handbook of Philosophy and Psychoactive Drug Use*; please quote from published version.

Introduction

For over thirty years, there has been a revival of scientific research into "classic" (serotonergic) psychedelic drugs such as LSD and psilocybin. As this *psychedelic renaissance*[2] has gathered momentum, the field has become more reflective, and has begun to confront in earnest some of the methodological, ethical, and conceptual problems that plagued earlier waves of psychedelic psychiatry.

One set of alleged problems concerns the use of terms such as "mysticism" and "mystical experience" in psychedelic research. Since Sanders and Zijlmans[3] urged psychedelic researchers to abandon the "mysticism framework" in the name of scientific rigour and clear communication, a heated debate has ensued, with some scholars agreeing that mystical concepts are vague and scientifically disreputable, while others contend that they are sufficiently precise and scientifically indispensable. These *mysticism wars*, as we will call them, continue to rage.

Here we aim to clarify some of the confusions that have permeated these debates and to chart a productive path forward. Disputes over the value of mystical terminology in psychedelic research have been unnecessarily complicated by the conflation of distinct questions and concerns, obscuring what is genuinely at stake. Even a recent attempt to offer a moderate resolution, based on the philosophical stance of *fictionalism*, has fallen prey (we will argue) to the same problems. We aim to correct these confusions and clarify the questions that need to be addressed. Once this is done, the way to end the mysticism wars becomes far clearer. In brief, our prescription is as follows: pay close attention to how terms like "mystical experience" are actually used in the relevant scientific literature, and attend consistently to a number of crucial distinctions – for example, between phenomenological and ontological uses of such terms, between questions of ontological accuracy and of scientific utility, and between methodological problems and public relations problems. It is the failure to do these things, not the use of mystical terminology, that threatens problems for the field.

The Role of Mystical Concepts in Psychedelic Science

The notion of *mystical experience* used in psychedelic science derives from the work of William James[4] and Walter Stace[5], both of whom posited the existence of a distinctive type of experience reported by religious practitioners and ordinary people across cultures, times, and places. According to these authors, while *interpretations* of the experience vary, the experience itself is characterised by an invariant phenomenological core involving feelings of unity, a loss of the ordinary sense of self, "noetic" feelings of gaining direct knowledge of ultimate reality, and a deeply felt positive mood.

Both James and Stace noted the apparent propensity of certain psychoactive substances to evoke such unitive mystical experiences under suitable conditions. This link was emphasized by students of mysticism such as Aldous Huxley[6], Alan Watts[7], and Huston Smith[8] – all of whom underwent psychedelic epiphanies of their own – as LSD and psilocybin became widely studied and discussed throughout the 1950s and 60s. Of course, the capacity of naturally occurring psychedelics to induce

religious or spiritual experiences has been attested by Indigenous traditions for centuries at least, perhaps much longer.[9]

This putative link was formalised scientifically in the doctoral research of Walter Pahnke, culminating in a thesis entitled *Drugs and Mysticism: An Analysis of the Relationship between Psychedelic Drugs and the Mystical Consciousness.*[10] Pahnke's aim was to test, scientifically, the claim endorsed by Huxley, Watts, and Smith: that high doses of psychedelics, under conducive conditions, could reliably induce experiences at least *phenomenologically* indistinguishable from the non-drug mystical states described by James and Stace. To this end, Pahnke developed a psychometric questionnaire intended to operationalize the Stacean notion of mystical experience, and administered psilocybin or placebo in double-blind fashion to a cohort of divinity students listening to a Good Friday service. Pahnke reported that the psilocybin group in this "Marsh Chapel Experiment" satisfied the Stacean criteria at a much higher rate than the placebo.

Fast forward forty-odd years and you will find the revival of human psychedelic research being heralded, in the *Journal of Psychopharmacology*, by the announcement that "Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance".[11] The Johns Hopkins studies of psychedelic experience in healthy volunteers, led by the late Roland Griffiths, were far from the first in the new wave of human psychedelic research. They were not even the first such studies in the United States.[12] But they *were* the first new studies since the 1970s to set their sights explicitly on using psychedelics to study mystical experiences scientifically.

Fast forward another fifteen years and you will find the psychedelic renaissance in full swing.[13] By this point, psychedelic-assisted psychotherapy ("psychedelic therapy") has been heralded as the next big psychiatric breakthrough in more mainstream news outlets than one can poke a mushroom at. An emerging consensus attests that one to three high-dose psychedelic sessions, properly supervised and embedded in a program of psychotherapy, can dramatically and durably reduce symptoms of depression, anxiety, addiction, and existential distress at the end of life, as well as changing personality and increasing well-being in healthy volunteers. Moreover, a central tenet of this consensus is that they do it, in the main, by inducing mystical-*type* experiences (a circumspect term now standard in the field). Study after study seems to find that of all the volunteers who receive high-dose psychedelics in controlled settings, those who experience the greatest and most lasting benefits are precisely those who satisfy (neo-) Stacean criteria – often formalised in a descendant of Pahnke's original questionnaire.[14][15]

What are we to make of such findings? Depending on whom you ask, a range of answers are available. Some will say that students of mystical psychopharmacology such as James, Huxley, Watts, and Pahnke have been vindicated by rigorous and unimpeachable science. Others will tell you that a promising line of investigation into a psychiatrically interesting class of molecules is being jeopardized by biased, vague, and unscientific terminology and objectionable metaphysical speculation. These opposing positions have given rise to what we will call the *mysticism wars* in psychedelic science.

The Mysticism Wars

These positions are exemplified by the views of (as we will call them) the "anti-mystics" and the "pro-mystics". Sanders and Zijlmans[16] represent the anti-mystical camp; they initiated the debate with an article that expressed concerns about blending mystical experiences with scientific inquiry and warned of possible confusion between empirical research and metaphysical beliefs. More recently, Mosurinjohn et al.[17] suggested that mainstream conceptions of mysticism threaten to perpetuate religious and cultural biases in psychedelic science. Conversely, the pro-mystics, epitomized by Breeksema and van Elk[18] and Jylkkä[19], advocate retaining a central place for mystical terms and

concepts in psychedelic research. Breeksema and van Elk emphasize the transformative and clinical significance of mystical experiences, while Jylkkä stresses the scientific legitimacy and philosophical plausibility of certain mystically-inspired metaphysical views.

Anti-Mystical Critiques

Sanders and Zijlmans (henceforth S&Z) argue for the removal of the concept of mystical experience from psychedelic research in favor of a "demystified" approach. Their critique is based on the contention that psychedelic researchers often fail to distinguish scientific theories from supernatural beliefs, resulting in a clash between "empirically based science and the many arcane aspects of psychedelic culture"[20]. S&Z argue that using mystical concepts in psychedelic research blurs the distinction between science and the supernatural, creating potential problems in both clinical research and public understanding. They propose adopting alternative theoretical frameworks, such as predictive processing, that are grounded in cognitive science and empirically tractable.

S&Z criticize what they see as the prevalent approach to the idea of mysticism in psychedelic research, arguing that while mystical experiences are recognized for their therapeutic potential, the deeper metaphysical implications are often overlooked. They caution against labelling certain experiences as "mystical" without addressing the associated metaphysical baggage, arguing that terms like "pure awareness" and "'ineffable' experiences of 'ultimate reality'" are invoked in discussions of mystical experiences without considering the deeper implications of such labels[21].

S&Z also raise concerns about the influence of Stacean ideas on psychometric measures in clinical trials. As noted above, widely used measures such as the 30-item Mystical Experience Questionnaire (MEQ-30)[22] descend directly from Pahnke's original attempt to operationalise Stace's conception of mystical experience. Stace's conception, derived from "theological, historical, and anecdotal accounts" as S&Z say, defines the mystical state by criteria such as "a sense of unity, timelessness, spacelessness, objectivity, sacredness, blessedness, peace, paradoxicality, and ineffability"[23]. S&Z contend that psychedelic research should seek to replace this concept with an empirically grounded, secular alternative. They argue that using questionnaires that embody the Stacean conception may influence study participants' interpretations of their experiences and thereby hinder researchers' ability to derive meaningful insights from their findings. By employing the (neo) Stacean mystical experience construct, S&Z say, "we are providing participants with a particular terminology and framework with which to understand their psychedelic experiences".[24] Thus, the administration of a questionnaire such as the MEQ-30 "invite[s] participants to interpret their experience through the framework of mysticism,"[25] potentially resulting in biased data.

We interpret Sanders and Zijlmans as making at least three distinct arguments. Firstly, they contend that the use of mystical terms and concepts may lead researchers themselves unwittingly to adopt a framework with unscientific metaphysical commitments. On this view, by adopting the "mysticism framework" wholesale, psychedelic scientists may unknowingly or uncritically be endorsing the existence of "experiences of ultimate reality" – and thereby of the putative reality itself.

Secondly, they raise concerns that using neo-Stacean constructs may prime subjects to interpret their experiences in such terms, thereby distorting and biasing the very data that are supposed to help us discover what these experiences are really like. As Jylkkä puts it, such questionnaires may "[bias] the empirical data, given evidence that the psychedelic experience is very sensitive to the so-called 'set and setting'".[26] Indeed, this is a slightly different worry – that the framework might affect not only how participants *describe* their experiences, but *the experiences themselves.*

Third and finally, S&Z express concern that the use of mystical terminology in psychedelic research might result in misinterpretation among laypeople. They contend that while scientists may not intend

to “include supernatural elements in their definition of mysticism”, this terminology may nonetheless be misunderstood by the public. They further hold that presenting mystical experiences as being “key to [psychedelics’] therapeutic action” risks misinterpretation, especially “when mystical experience phenomena are [often] conflated with mystical beliefs about what psychedelic experiences mean.”[27] This misrepresentation, S&Z suggest, may lead to exaggerated claims about the therapeutic potential of mystical experiences, based on insufficient scientific evidence.

A related but distinct critique has been offered more recently by Mosurinjohn, Roseman, and Girn. We categorize them among the “anti-mystics”, given that their central purpose is to express concerns about mysticism-related terms and constructs as they are currently used in psychedelic science. However, their conclusion is less radical than S&Z’s, and close to our own ultimate view: that current measures of mystical experience should continue to be used alongside research efforts aimed at developing new, alternative measures and constructs that *may*, in the end, prove superior empirically. Indeed, they explicitly agree with the contentions of the pro-mystics, discussed below, that mystical experience is a legitimate and important category for scientific study and should not be expunged as S&Z propose. Nonetheless, they have concerns about *how* it is studied and defined at present.

A primary focus of Mosurinjohn et al. is the alleged perennialist and Christian biases inherent in current understandings of mystical experience in psychedelic science. Along the same lines as S&Z, they argue that concepts associated with mysticism, such as “God” and “Ultimate Reality,” carry “religio-cultural baggage” and “connotations of spiritual and metaphysical concepts… typically construed as outside the domain of science”. [28] However, they also find grounds for concern in the *origins* of these conceptualizations, arguing that presently dominant accounts of mystical experience were developed (a) by researchers, such as Huxley and Stace, with putative Christian or perennialist biases, and (b) in isolation from modern scholarship on religion, e.g. in religious studies and anthropology. For Mosurinjohn et al., such origins cast doubt on the credibility of the mainstream mystical constructs.

The authors extend their critique to contemporary research, citing studies at institutions like Johns Hopkins that use measures derived from Stace’s work to assess mystical-type experiences induced by psychedelics. They argue that this usage perpetuates perennialist/Christian biases and thereby limits researchers’ understanding of participants’ psychedelic experiences, particularly those that do not naturally fit entrenched conceptions of mystical experience. They illustrate their point by citing trip reports from archives like Erowid, which often diverge from standard notions of ‘mysticism’ or ‘spirituality’ common in psychedelic science.

Lastly, Mosurinjohn et al. express concerns about the limitations of relying too heavily on the mystical (type) experience construct to assess the subjective effects of psychedelics. They note that “the creation of a statistically validated and reliable psychometric assessment does not necessarily entail [that] its purported referent [is] a discrete, *unified* phenomenon” (emphasis original).[29] Without a clear link between such constructs and neurobiology, they suggest, such assessments serve only as heuristic tools to understand related effects, highlighting the need for a broader approach in psychedelic research.

Pro-Mystical Responses

The radical suggestions of S&Z have been challenged by scholars sympathetic to the current use of mystical terminology in psychedelic science. These *pro-mystical* partisans hold that critiques of such terminology stem from an inadequate understanding of how it is actually used in scientific research. They also contend that a demystified model of the psychedelic state fails to account for important and unique aspects of psychedelic experiences.

Breeksema and van Elk (henceforth B&V) were among the first to respond to S&Z, contending that dismissing mystical experiences as scientifically irrelevant ignores their complexity and significance. B&V contest S&Z's claim that researchers who use the concept of mystical experience thereby endorse supernatural interpretations of psychedelic experiences. In response, they contend that psychedelic-induced mystical experiences are not inherently supernatural and can be studied empirically without endorsing or rejecting controversial metaphysical claims. According to them, the concept of mystical experiences is used in psychedelic science in a way that remains "agnostic regarding… the truth or falsehood of these experiences".[30] In other words, researchers do not endorse or reject supernatural interpretations but approach the phenomenon from a neutral standpoint, focusing on empirical observation and analysis of such experiences rather than metaphysical beliefs about their veridicality.

B&V make three more basic points in response to S&Z. The first is that mystical experience has been shown to have clinical and scientific relevance in psychedelic research, playing an important role in not just predicting but also explaining various outcomes; there are comprehensible links between the documented phenomenology of such experiences and the psychological changes they bring about. The second is that extensive and sophisticated methods exist in psychedelic science, and the neighbouring psychology of religion, for studying mystical (type) experiences. Such detailed mapping of subjective experience, say B&V, is preferable to S&Z's emphasis on "brain-based explanations," an approach that (they say) minimizes the psychological and spiritual dimensions of psychedelic experiences. Finally, B&V recommend fully embracing the "mystical and other weirdness" of psychedelic experiences, pointing out that their unusual subjective effects are precisely what make psychedelics such a compelling and important research topic. Discussing recent attempts to create therapeutic variants of psychedelic molecules "without the trip", B&V acknowledge the value of such research, but stress that subjective experiences are central to the essence of psychedelics and should not be neglected or downplayed.

A second early response to S&Z came from Jylkkä, who acknowledges the need for impartial and indeed non-mystical psychometric tools to assess psychedelic experiences. He concedes that questionnaires such as the MEQ-30 may "bias how the subject interprets their psychedelic experience", as well as influencing the experience *itself*. For Jylkkä, this is both a "methodological and an ethical problem", since it is important to respect participants' autonomy when it comes to interpreting experiences that can be transformative and regarded as personally significant.[31] On a practical level, then, Jylkkä anticipates the later views of Mosurinjohn et al. that current mystical experience measures should continue to be used, while also developing new measures that may overcome some of their limitations.

Jylkkä's main concerns, however, are that S&Z incorrectly assume (a) that all consciousness-related phenomena can be fully studied and understood scientifically and (b) that "all mystical phenomena conflict with naturalism and science". On the first count, he refers to influential philosophical work on the "*epistemic gap* between subjective experiences and science" (emphasis original).[32] According to Jylkkä, while a few philosophers hold radical positions that deny the existence of conscious experience altogether, most acknowledge its existence and that of an epistemic/explanatory gap, suggesting that purely objective, scientific understanding of *any* experience – mystical or otherwise – must at least be incomplete. Jylkkä connects this to the alleged ineffability that is a defining aspect of mystical experience in the James/Stace sense, arguing that a recognition of the ineffability of conscious experience *in general* is not only consistent with science, but philosophically highly plausible.

On the second count, Jylkkä notes that psychedelic experiences often include insights such as "all is one," aligning with the philosophical position of monism – that everything belongs to a single ontological class. As he points out, this idea appears consistent with physicalism, which posits that everything, including consciousness, is physical and consists of "the same energy that originated in

the Big Bang".[33] More generally, he argues, characteristically mystical metaphysical positions such as panpsychism can be formulated in ways compatible with natural science and materialism. For Jylkkä, the truth or falsity of such philosophical views cannot be decided by offering neural or psychological explanations of why people believe them; after all, beliefs in naturalism and physicalism presumably also have such explanations. At the end of the day, he says, the truth value of such positions is a philosophical question that cannot be answered by scientific investigation alone. Thus, we should be wary of the claim that mystical experiences *per se* – and mystical phenomena more broadly, including beliefs – necessarily involve supernatural or anti-scientific (as opposed to extra-scientific) ideas.

The Fictionalist Proposal

In a recent paper, Garb and Earleywine (henceforth G&E) attempt a rapprochement between the two sides of this conflict, offering a relatively nuanced proposal that concedes some ground to the anti-mystical and the pro-mystical camps. G&E acknowledge some benefits to the use of mystical terminology, and propose not its abandonment, but rather a change in how it is understood. Specifically, they propose that psychedelic researchers become philosophical *fictionalists* about "the mystical".[34] In this section, we describe their proposal, before examining it critically in the next.

G&E begin by claiming that there are certain methodological and conceptual problems that arise from the study and discussion of mystical experiences in psychedelic science. We quote from their abstract at some length:

> Mystical experiences frequently precede decreases in human suffering or increased functioning. Therapies that include the ingestion of psychoactive substances in supportive environments often lead to improvements that correlate with the magnitude of the mystical experiences generated. A close look at these phenomena from a philosophy of science perspective might put empiricists in a quandary. Arguments with critics of the import of these mystical experiences, prohibitionists, or others who are apprehensive about psychedelic-assisted treatments, might prove awkward or difficult given the tacit assertion that the mystical genuinely exists. The assumption might even dampen theorizing in ways that remain outside of theorists' awareness. The predicament might lack the epistemic humility ideal for good science as well. Nevertheless, abandoning the construct of mystical experiences would require ignoring compelling, replicated empirical work.[35]

To be sure, the general shape of the dilemma that G&E think confronts psychedelic science is clear enough: There are good reasons to get rid of the construct of mystical experience, but also good reasons to keep it. Their basic worry about the continued use of mystical terminology seems to be this: (1) In using such terminology, psychedelic researchers are (wittingly or unwittingly) committing themselves to the existence of "the mystical", but (2) such a commitment has no place in empirically respectable natural science. However, they propose that a fictionalist approach can allow researchers to retain the benefits of using the terminology, while avoiding a commitment to the mystical.

What, then, is a fictionalist approach? Fictionalism is a type of position that some philosophers adopt regarding discourse about some putative classes of entities. It is basically the position that discourse about the given class of entities should be, or already is, understood as a *useful fiction*. Or put another way, claims about certain entities may be false of the actual world, but can be judged as true *in relation to a particular fictional story, framework, or theory*. And in virtue of this, it can be useful and valuable to talk about such claims *as* true under the appropriate conditions – even though they are, strictly speaking, false. Consider G&E's example of the fictional detective Sherlock Holmes:

> Lewis (1978) explains how a sentence like 'Sherlock Holmes is a brilliant detective' could be true without requiring the existence of a real Sherlock Holmes. The idea, in brief, is that when

> a speaker sincerely asserts, 'Sherlock Holmes is a brilliant detective', what she intends to assert, and what she manages to assert, is that, according to the Sherlock Holmes stories, Sherlock Holmes is a brilliant detective. This sentence is straightforwardly true but does not commit the speaker to the existence of Sherlock Holmes because the story-prefix operator, 'According to the Sherlock Holmes stories', is non-factive. In this way, Lewis (1978) was able to explain how speakers can truly report on fictional claims without committing to the existence of any fictional characters.[36]

Such an example is all well and good, but how does this relate to scientific cases? A more pertinent example discussed by G&E is *mathematical* fictionalism. Mathematical fictionalists think that (1) the objects of mathematical discourse, such as numbers, sets, and so forth, do not really exist (i.e. mathematical terms do not refer), yet (2) mathematical claims can still be true *according to the formal system (fiction/story) of mathematics.* As they put it:

> Field (1980) adopted a version of [fictionalism] that applies to mathematical statements. Field is a nominalist; he does not believe in the existence of abstract objects. Numerals, when they function as nouns, would refer to abstract objects, assuming that they pick out an object at all… But mathematical discourse is indispensable in the sense that we need to involve mathematics to explain many, many phenomena. This predicament creates a conundrum for nominalists, since they reject the existence of numbers but cannot jettison all mathematical discourse. Field (1980) provided a way to resolve this conundrum… he concluded that standard, arithmetical statements like '2+3=5' or '3 is a prime number' are, strictly speaking, false, since the singular terms that they include, namely, '2', '3' and '5', fail to refer to any objects. That is, no '2' exists in reality. But, Field contended, such statements do not have to be false; we can interpret these arithmetical statements differently. His proposal was to adopt and endorse a fictionalist reading of such statements… According to Field, an assertion of '2+3=5 is, strictly speaking, false. The claim 'According to the story of mathematics, 2+3=5' is [however] straightforwardly true because, according to the story of mathematics, this arithmetical statement is correct.[37]

The major advantage of such an approach is supposed to be this: It can allow us to acknowledge that talking about mathematical entities may be an essential part of scientific practice, even if such entities do not exist. Mathematical claims, while not true on a naïve or literal reading, are nonetheless true when construed as claims about *the formal system* (the story) *of mathematics*, and such a formal system has proven profoundly important to our scientific understanding of the world. Thus we can have our cake and eat it too. If such claims were false on *all* legitimate construals, then their role in science would be called into question – but if they are true on some legitimate construal (the fictionalist one), this allows us to validate their place within scientific practices.

G&E's concern, of course, is not numbers or sets, but rather *the mystical*. Nevertheless, they propose an analogous move:

> Although the Mystical Experiences Questionnaire (or comparable measures) need not begin with the instructions "According to your experience…" any endorsement of something profound and holy happening essentially relies on the nonfactive story-prefix operator.[38]

On this proposal, it is, strictly speaking, false to say that a given psychedelic subject had a mystical experience. However, this claim may be true according to the fictitious "story" of the experience. Thus claims about mystical experiences can be true in a limited but legitimate sense, justifying their scientific application. This means we can still bar mystical realities from our ontology, while also noting

that claims about them are justifiable within scientific discourse, thereby retaining the explanatory and predictive power obtained in psychedelic science by instruments like the MEQ-30.

Clarifying the Confusions

While G&E make a valiant attempt to provide a solution to the mysticism wars, we argue that their solution ultimately fails. This is because in developing their solution, they unknowingly fall victim to the same problem that drives much of the mysticism wars: Namely, different issues are being run together, creating considerable confusion about what problems need to be solved and how best to solve them. Straightening these out is the first step in helping us to make sense of what issues are really at stake, and why some attempts at ending the mysticism wars are unlikely to bear fruit. Let us therefore explore the range of confusions and conflations that have driven the mysticism wars, and how these will continue to derail solutions like G&E's, until greater caution and clarity are adopted.

We should acknowledge at the outset that many of the points we want to make here are not original; in several cases, we are simply echoing, or elaborating on, points made by Breeksema, van Elk, and Jylkkä. Our main intentions are (i) to explore some of these points in greater detail and (ii) to show how the same problems afflict even more recent and moderate proposals such as G&E's. By developing a unified understanding of the confusions underpinning the various, disparate anti-mystical critiques, we hope to point the way to a genuine and effective solution.

Failure to distinguish phenomenology from ontology

The primary confusion is that G&E's phrase "the mystical" (like S&Z's term "mysticism") is ambiguous. First, this phrase could simply refer to mystical (type) *experiences* – a certain class of psychological states that people undergo, that can have certain causes (such as psychedelic ingestion) and certain consequences (such as reduced depressive symptoms). If this is what "the mystical" means, then surely the mystical exists; there is (or should be) no serious doubt that people really have experiences of this kind. On the other hand, "the mystical" could refer to the putative *objects* of such experiences – i.e. to actual mystical realities such as a cosmic consciousness or ground of being. Under this second reading, to grant the existence of mystical experiences is to grant the existence of *mystical realities.* On this reading, doubt about the mystical is more defensible. Failure to distinguish these two different senses of "the mystical" has led to significant problems, many of which can be avoided by heeding the following simple observation: Psychedelic scientists can, and standardly do, accept the existence of mystical (type) experiences without *thereby* accepting the existence of mystical realities.

The point is very simple and totally familiar: we can study the causes and consequences of theistic belief, for instance, from a position of total (methodological) agnosticism about the existence of God. Very few people think that psychologists of religion must *ipso facto* be ontologically committed to the existence of God, or of "the theistic." It is enough to note that they can affirm the existence of *beliefs* (psychological states) that refer to God, and cite such beliefs in unimpeachable science and offer well-supported mechanistic explanations of religious beliefs, without *thereby* taking any position about the existence or non-existence of a supreme being (as B&V rightly point out). Likewise, researchers can study Cotard's delusion (a psychiatric condition in which individuals sincerely claim that they are dead) without taking an ontological stand on the possibility that the deceased are still able to walk and report their experiences to us. Being a realist about theistic *belief* does not imply being a realist about deities, just as being a realist about Cotard's syndrome does not imply accepting the possibility of deceased individuals walking and talking.

Despite the simplicity of the point, this sort of conflation is common in debates about mystical terminology in psychedelic research. Consider Mosurinjohn et al., who argue that the usage of the construct 'mysticism' in psychedelic research is rife with limitations and biases. Central to their critique

is the claim that contemporary understandings of mystical experiences lack historical contextualization, leading deep-seated perennialist and Christian biases to be overlooked. While there are concerns here that are worth taking seriously, and while Mosurinjohn are aware that mystical experience is a legitimate object of scientific study, they do not always clearly distinguish assertions about mystical *experiences* from assertions about mystical *realities*. This conflation is evident in their broad definition of mysticism as "the practice of techniques that elicit experiences which are construed as enabling access to metaphysical insight based in self-transcendence and/or extrasensory perception"[39]. This definition lumps together various phenomena (practices, experiences, and beliefs about them) which may form aspects of a unified phenomenon in some sense, but can usefully be distinguished and do not always travel together. Similar remarks apply to the following passage:

> …although psychedelic scientists may believe themselves to be avoiding any theological, supernatural, or metaphysical positions (and therefore employing 'mysticism' concepts differently than many study participants, patients, and press), this is often not made explicit. In fact, when defining 'mysticism', papers often explicitly invoke religious or religion-related concepts in the same breath… When researchers use this label of 'mysticism', and especially when they pair it with theological discourses, God-talk, and reference to religions, they imply that the concept does have something to do with theological, supernatural, or metaphysical matters.[40]

In our view, there is no great puzzle here. Researchers can hold that the concept of mystical experience has something to do with theological, supernatural, or metaphysical matters, by noting that these are experiences in which – by definition – people *feel as though* they gain direct knowledge of a unitive Ultimate Reality. They can simultaneously avoid taking any theological, supernatural, or metaphysical positions by refusing to assert the *actual* existence or non-existence of such a Reality. In so doing, they are not employing "mysticism" concepts differently than study participants and so forth; they are simply engaging in the scientifically sensible practice of talking about, and studying, mystical experiences – fully characterized, including their *apparent* metaphysical implications to the subject who has them – from a professional standpoint of strict agnosticism about whether they are veridical.

For another example, take S&Z's claim that there are "risks and difficulties stemming from the scientific use of a [mysticism] framework" because it is "associated with supernatural or nonempirical belief systems." The concern seems to be as follows: By granting the existence of experiences that can usefully and accurately be categorized (phenomenologically) as *mystical* we thereby implicitly grant the metaphysical existence of corresponding mystical entities or realities. This is akin to saying that if people can have hallucinations of supernatural entities like ghosts, then ghosts must exist. But whether ghost hallucinations are a real phenomenon is a distinct question from whether ghosts are.

It is for this reason that B&V argue – correctly, in our view – that the desire to expunge references to mysticism from psychedelic science stems from a misconception of mysticism as "an esoteric, woozy notion, rather than a well-defined [empirical] phenomenon". They contend that characterizing mystical experiences as scientifically irrelevant constitutes a straw man argument, as it oversimplifies the complexity of the topic and fails to acknowledge the frequency and personal significance of such experiences. Furthermore, they point out that in clinical practice, researchers aim to understand mystical experiences through empirical observation and analysis while remaining neutral or "agnostic regarding the metaphysical claims about the truth or falsehood of these experiences".[41] That is, researchers focus rightly on studying the psychological and experiential aspects of mysticism, independent of any associated metaphysical beliefs.

So much is common ground to pro-mystical partisans. We claim, however, that these same confusions are being perpetuated *even* by those like Garb and Earleywine, who aim to reconcile both sides of the

mysticism wars. Recall that the putative class of entities that Garb and Earleywine recommend fictionalism about is "the mystical". We believe their argument can fairly be reconstructed as follows:

1. In psychedelic science there is a discourse concerning the mystical.
2. It is seriously doubtful that the mystical really exists.
3. But the discourse concerning the mystical is extremely valuable.
4. If there is a discourse concerning a putative entity or class of entities, such that the discourse is extremely valuable and the existence of the entity or class of entities is seriously doubtful, then we should consider adopting fictionalism about the discourse.
5. Therefore, we should consider adopting fictionalism about the discourse concerning the mystical in psychedelic science.

Whatever one's views about fictionalism generally, premise 4 clearly specifies the conditions under which it *might* make sense to consider a fictionalist approach. (G&E's acceptance of this idea can be seen in their discussion of Field's mathematical fictionalism and the facts about mathematical discourse and practice that motivate that view.) Meanwhile, premises 1-3 jointly assert that these conditions are satisfied by the discourse about "the mystical" in psychedelic science.

The problem here is that the phrase "the mystical" is ambiguous, and whichever way we disambiguate it, one of the premises of the above argument turns out to be false. First, this phrase could simply refer to a particular class of *psychological* states, such as mystical (type) experiences. If this is what "the mystical" means, then premise 3 is true; the concept of mystical (type) experiences is, as G&E acknowledge, crucial to "compelling, replicated empirical work". But on this construal, premise 2 is false: There is, or should be, no serious doubt that people really have experiences of this kind.

On the other hand, "the mystical" could refer to the putative *objects* of such experiences – i.e. to actual mystical realities such as a cosmic consciousness or ground of being. On this construal, premise 2 is true – it is, indeed, seriously doubtful that such things exist – but *premise 3 is false*. There is no indispensable discourse concerning *these* things in psychedelic science. The compelling, replicated empirical work in question – and the associated theorizing – does not invoke posits such as "cosmic consciousness" and "ground of being" in its descriptions and explanations of psychedelic therapy. It invokes posits such as "mystical-type experience", defined as psychological states in which people *feel* that they encounter certain realities – without any commitment concerning whether they really do.

Formally, then, we are responding to G&E's case for fictionalism with the following counter-argument:

1. Fictionalism about the mystical in psychedelic science is warranted only if there is an extremely valuable discourse about the mystical in psychedelic science and the reality of the mystical is seriously doubtful.
2. Either the mystical is identical to mystical (type) experiences or the mystical is identical to putative mystical realities.
3. If the mystical is identical to mystical (type) experiences then the reality of the mystical is not seriously doubtful.
4. If the mystical is identical to putative mystical realities then there is not an extremely valuable discourse about the mystical in psychedelic science.
5. Therefore, fictionalism about the mystical in psychedelic science is not warranted.

Informally, the point can be put very simply. Once we recognise that it is only talk of mystical (type) *experiences* that is valuable in psychedelic science, and only mystical *realities* whose existence is seriously doubtful, the apparent problem that the fictionalist proposal is intended to solve dissolves.

As is true elsewhere in philosophy, the simple distinction between phenomenological and ontological claims – claims about how things *seem* and about how they *are* – is of the utmost importance.

Failure to distinguish ontology from methodology

The second confusion at work in the mysticism wars stems from a common, and often unspoken, assumption that our best scientific models and theories should be *true*, and so should always correctly describe the underlying metaphysics of a given system (employing scientific constructs that denote pre-existing natural kinds). On this view, if we can show that a scientific model or theory is describing the world in a way that does not map onto the correct metaphysics, then it ought to be abandoned or it risks standing in the way of scientific progress. S&Z exemplify this idea when they claim that "psychedelic science has not made a concerted effort to supersede Stace's mystical consciousness concept with an alternative rooted in empirical data and an unambiguously secular framework"[42]; a similar concern can be seen in Mousourinjohn et al.'s remarks about linking constructs such as mystical-type experience to underlying neurobiology.

On the face of it, there is an intuitive pull to this type of argument: even if the construct "mystical" is intended to denote real cognitive states of the brain, it is not describing those real states in a correct, metaphysically respectable way, and so they must be redescribed. But this argument confuses two different questions. The first is: what sorts of descriptions, frameworks, and constructs are methodologically valuable to scientific discourse and practice? The second is: what sorts of descriptions, frameworks and constructs correctly describe the underlying metaphysics of the system? We know empirically that answers to one question do not determine answers to the other. To assume *a priori* that good methodology must always conform to correct metaphysics is not only unjustified but is in fact at odds with our best scientific practices.[43]

The essential and ineliminable roles that idealizations, distortions, simplifications, and misdescriptions play in science have been well documented by philosophers and scientists alike for decades.[44454647484950515253545556 57] Newtonian mechanics describes the world in ways we know are metaphysically incorrect (by assuming that space and time are distinct entities, and that the passage of time is not dependent on one's reference frame); however, it remains a valuable tool in scientific practice. No physicist claims that we ought to eliminate all use of Newtonian mechanics from scientific practice or discourse, otherwise physics could not explain most everyday systems that we encounter.

Our dependence on highly idealized models and theories extends beyond domains like physics[5859] to biology,[606162] neuroscience,[63646566] psychology,[6768] and medicine and psychiatry.[6970] A particularly illustrative example is the elimination of the "bereavement exclusion" in the Diagnostic and Statistical Manual of Mental Disorders (DSM).[717273] Earlier versions of the DSM proposed that depressive symptoms should not be classified as a depressive disorder if they occurred after a personal loss, as these symptoms are expected during mourning. Only if the symptoms persisted and were debilitating beyond two months would a diagnosis of depressive disorder be considered. However, the recent DSM-5 editions have removed this exclusion. According to Şerife Tekin, "the rationale for removing the bereavement exclusion is that the observable and distressing experiences of grieving individuals and those in depression are similar. The argument is that there is no scientific evidence for characterizing bereavement-related distress and depression as distinct conditions".[74] Put simply, we have no reason to assume that bereavement is a different kind of cognitive/mental state from depression, and thus such a distinct classification would not accurately reflect our mental lives. Consequently, the value of this distinction is supposedly undermined, since treatments for one should work for the other.

However, as Tekin rightly points out, the metaphysical question whether bereavement and depression are the same cognitive/psychological state is irrelevant to whether the distinction is *therapeutically*

important. This is because coping with depressive symptoms tied to a loss may be significantly different from coping with those same symptoms when they are not tied to a loss. This distinction is not due to the symptoms' arising from distinct neuro-cognitive states but because, as Tekin explains:

> Grief is an emotional, physical, cognitive, behavioral, social response to the loss of someone to whom the individual has a strong attachment. It is an adjustment process that involves lamenting for the deceased and for the self. The individual is distressed about the loss of an inherently and independently valuable person who can no longer participate in life and engage in the completion of certain projects. The age of the deceased, the way he died (e.g., sickness or accident), and his character, all influence how the individual grieves. She must recognize and negotiate with the fact that the deceased will not be returning back to life.[75]

Put another way, subjects often understand their mental distress through a complex web of past experiences, social influences, cultural practices, and historical events that shape their identities and mental lives. In this context, distinguishing between grief and depression is crucial for therapy, as the loss of a loved one might fit into this web differently than other depressive symptoms. Consequently, effective interventions may differ. The issue is not whether depressive symptoms arise from the same cognitive state, but what treatments are most useful in various situations. It is an empirical question whether a classification framework serves important scientific or medical purposes.

Just as the bereavement diagnosis in psychiatry may prove essential irrespective of whether it describes the underlying natural kinds of the brain correctly, so too might the "mystical" classification prove essential to psychedelic research irrespective of whether it is describing the underlying natural kinds of the brain correctly. As such, we should separate the question of whether "mystical" classifications of psychological states are valuable from whether they accurately describe the metaphysics of such states. This is particularly relevant since Sanders and Zijlmans acknowledge that "relevant measures, such as the Mystical Experience Questionnaire, have been shown to produce reliable results in factor analyses and predict treatment outcomes".[76] One possibility, of course, is that such measures *are* tapping into the underlying metaphysics. However, we want to emphasize that they can be – and seem to be – scientifically and clinically useful, whether or not this is the case.

Failure to distinguish scientific methodology from science communication

The next confusion fuelling the mysticism wars comes from a failure to distinguish good scientific *methodology* from the way that scientific results are *communicated* to the public. Consider S&Z:

> We recognize that most scientists studying psychedelics do not include supernatural elements in their definition of mysticism, but the translation from lab to clinical practice and layperson must be considered. We are concerned that if science states that psychedelics induce mystical experiences that are key to their therapeutic action, this is too easily misinterpreted as research advocating a role for the supernatural or divine.[77]

While this is a reasonable concern, suggesting that we should therefore remove mystical terminology to avoid misunderstandings by laypeople goes too far. Consider an analogy: our everyday folk concept of "time" is substantially different from the rigorous scientific concept of "time" as it is employed within the theory of relativity. The folk concept of time is widely held across different societies; should we, therefore, eliminate the term "time" from physics to avoid making physical theory too easily misunderstood by the public? It is unlikely that many physicists (or philosophers of physics) would accept this suggestion. There are legitimate concerns about how scientific research is communicated to the public, how operationalized terms in science differ from their folk counterparts, and how best to educate experts and non-experts on subtle conceptual distinctions in science. However, these questions are separate from whether relevant terms or concepts are valuable in scientific research. If

scientific terminology should always be changed to avoid potential misinterpretations by non-experts, then most scientific fields would be required to radically overhaul their current terminology. It is hard to see how this would help scientists do their research.

A related concern is the potential impact mystical terminology might have on grant applications. The worry is that if scientific work becomes associated with seemingly unscientific mystical or supernatural entities, it could hinder researchers' ability to secure funding, even if their research lacks any metaphysical commitment to such concepts – a worry discussed by G&E, alluding to events described by Rick Strassman.[78] Thus, mandating the use of more naturalistic and scientifically acceptable terminology may mitigate these issues.

However, this worry conflates productive scientific methodology for studying various phenomena with how best to describe one's work when seeking grants. Some grant organizations might even be *more* inclined to fund research if they mistakenly believe it involves mystical entities or the supernatural. Should science then abandon naturalistic and scientifically acceptable terminology to improve funding prospects? Regimenting scientific terminology primarily to attract grant funding, regardless of its impact on scientific practices, would ultimately hinder rather than help science. While important questions exist regarding scientific research funding and its allocation, these questions should not be confused with questions about which scientific classifications are productive, informative, and crucial to scientific practice.

Failure to distinguish two ways in which a construct might be abandoned

A related confusion in the anti-mysticism literature is a failure to distinguish two questions that may be asked about a scientific construct. The first is: *does it play an important role in scientific practice now*? The second is: *might it be eliminated in favour of superior construct(s) in the future?* Mosurinjohn et al., for example, argue that the sorts of effects mystical constructs are used to identify "may very well be better captured by a different set of abstractions."[79] Meanwhile S&Z recommend the elimination of mystical constructs from psychedelic research in part on the grounds that "more mundane concepts are suspected by researchers to drive therapeutic outcomes, and other self-report measures may predict therapeutic outcomes with fewer conceptual complications."[80]

The fact that other constructs are "suspected" to drive therapeutic outcomes, or "may" predict therapeutic outcomes with fewer conceptual complications, is not evidence that they actually do. Relying on the assumption that a better construct will emerge in the future to displace our current scientific constructs often leads to overlooking the value that a particular scientific construct holds in present research, especially when no alternative construct has yet demonstrated the same benefits. Abandoning current constructs solely based on the potential for a better one in the future will only hinder our ability to conduct good scientific research.[1]

To illustrate, consider a similar debate in contemporary cognitive science. With the emergence of Dynamical Systems Theory (DST), and the Complex Systems Approach (CSA), in understanding human cognition, a growing number of cognitive scientists argue against the orthodox view that the brain forms mental representations of the world and engages in computation. They advocate abandoning scientific constructs like "representation" and "computation" in favor of alternative frameworks such as DST and CSA. These frameworks, supported by appropriate mathematical formalisms, are believed by proponents to more accurately track relevant systemic changes and account for behavior compared to the standard computational-representational theory of mind.[8182838485]

[1] We should note that, while S&Z recommend this course of action, Mosurinjohn et al. do not.

However, such claims have encountered significant resistance from practicing neuroscientists and cognitive scientists. They argue that these new frameworks are severely underdeveloped and do not surpass the current computational framework in scientific value. Moreover, the mere promise that these new frameworks will eventually outperform current ones remains unsubstantiated until evidence is provided.[868788899091] Chris Eliasmith, the head of the Centre for Theoretical Neuroscience at the University of Waterloo, aptly observes that "only if CSA provides a theory that captures phenomena that cannot be captured given the theoretical resources of the 'standard' views should we take the calls for revolution seriously".[92] He ultimately concludes that:

> [Concepts of "Representation" and "Computation"] underwrite detailed simulations of motor behavior. It is unclear to me how suggestions that CSA terminology better describes the phenomena are supposed to convince these authors to change their chosen, well-specified terminology *when neither competing models nor unexplained phenomena are on offer*.[93]

In the same vein, until it is shown that alternative constructs allow us to identify, track, and study the same stable set of symptoms and therapeutic outcomes that the "mystical" construct allows us to do in current psychedelic research, calls to abandon the construct are premature. This is not to say that such a time may not come in the future – only that science, not *a priori* arguments, must take us there.

Of course, some anti-mystics such as G&E worry that the dominance of the "mysticism framework" will impede such research efforts; the consensus about the importance of mystical experience may "dampen theorizing" and prevent the development of new measures and constructs. However, this claim is undermined by the existence of a flourishing research programme aiming to do exactly that, which has generated new measures of psychological insight,[9495] acceptance-promoting experience,[96] connectedness,[97] and various other constructs. When deciding the fate of the mystical experience construct, we should look to the findings of such research – not to empirically unfounded speculation about how the construct's current dominance might stifle scientific progress.

Failure to distinguish scientists' personal metaphysical views from their scientific research

The final confusion we want to highlight in the mysticism wars is a conflation of scientists' personal metaphysical beliefs with the metaphysical commitments of their scientific work. The confusion can best be illustrated with the following sort of argument: the trajectory of psychedelic research was influenced by theorists (past and present) who not only study psychological and cognitive aspects of mystical experiences, but also espouse an explicit metaphysical commitment to the existence of mystical realities. Since the mystical framework for interpreting psychedelic states has been significantly influenced by researchers who hold biased metaphysical views, it will always retain a paranormal or mystical bias. As such, we ought to be suspicious of research conducted by scientists who use such a framework – especially if they, too, believe in the existence of mystical realities.

But we must be cautious. The fact that the mystical experience framework may have had roots in supernatural or mystical beliefs by itself tells us nothing about whether the use of such a framework in current research is beneficial or not. As Paul Thagard rightly notes, "origins are irrelevant to scientific status. The alchemical origins of chemistry and the occult beginnings of medicine are as magical as those of astrology".[98] Likewise, the fact that someone engages in metaphysical speculation about mystical realities does not, by itself, tell us anything whatsoever about whether their published scientific research on a given topic is empirically grounded, informative, or carried out responsibly. To assert that because one has metaphysical views of a certain sort, this *ipso facto* undermines any scientific research one does, is nothing more than a genetic (i.e. *ad hominem)* fallacy.

There is a reasonable version of this concern, however: one's metaphysical views *can* impact their methodological practices and experimental results without their realizing it. For example, someone who believes in mystical realities may unconsciously bias their experiments and interpretations of results. (Strassman, for example, argues that something like this is happening in the work of William Richards.) This is, indeed, a worry worth taking seriously, but there are two things to note about it. First, this issue isn't exclusive to psychedelic research: The risk of one's implicit metaphysical views influencing and distorting one's practice is simply a constant worry that all scientists in all fields must grapple with.[99] Second, the connection between metaphysical views and scientific research is more intricate than commonly thought.

The history of science offers a telling example of why caution is crucial: the transition from alchemy to modern chemistry. Antoine Lavoisier is often celebrated for his role in "The Chemical Revolution" and credited with developing the oxygen theory of combustion. It is commonly believed that his discovery of oxygen played a pivotal role in overturning older metaphysical ideas like phlogiston and caloric, marking the advent of modern chemistry. However, this narrative oversimplifies the situation.

As Hasok Chang explains, "what Lavoisier conceived as 'oxygen gas' was full of caloric, by virtue of which oxygen served as the source of heat released in combustion according to his theory. Second, if we set caloric aside, what is left is "oxygen base", which was for Lavoisier the essence of acidity".[100] It wasn't until after Lavoisier's death that the concept of oxygen was developed into its current form. It is hard to deny that Lavoisier's metaphysical beliefs regarding caloric and acidity influenced his scientific interpretations and practices. However, his research was not thereby invalidated.

But why not? The answer, Chang tells us, is because of what his scientific research allowed us to *do*:

> All of the procedures that Lavoisier had used for producing and identifying oxygen gas are still repeatable and valid; that is also to say, most of the observable properties of oxygen gas noted by Lavoisier are also still recognized today. Heat some red oxide of mercury intensely; collect the evolving gas in a glass jar; see things burn with special vigor in that gas, and animals live longer; breathe it and feel a lightness in the lungs; explode it together with hydrogen gas and make water. This operational stability is what is responsible for fixing the extension or reference of "oxygen", to the extent that it has been fixed over the centuries.[101]

Lavoisier's research has allowed us to identify a stable phenomenon and manipulate it effectively under experimental conditions, despite his incorrect metaphysical views on caloric, acidity, and their relationship to oxygen. The lesson here is that whether someone's metaphysical views derail their experimental results can only be decided case by case. As Thagard points out, "historians have detected mystical influences in the work of many great scientists, including Newton and Einstein".[102] Yet, we do not conclude on this basis that we should discard all of Einstein's or Newton's scientific research. Jamesian and Staceian constructs warrant similar treatment.

The Way Forward: A Path Beyond the Mysticism Wars

Having diagnosed some of the key confusions fuelling the mysticism wars, we are now in a far better position to address the real issues at the heart of these disputes. Central to all this is the question: is it helpful or harmful to scientific methodology and clinical practice to characterize certain types of cognitive/psychological states *as mystical* (by using tools like the MEQ)? By not confusing *this* question with other questions – such as "do mystical entities exist?", "will the use of mystical terminology prejudice grant proposal reviewers?", and "is mystical terminology likely to be misunderstood by the non-specialist public?" – we can explore the nuances of this question on its own terms.

First, let us note something important about the psychometric scales used to operationalize the mystical (type) experience construct in psychedelic research: The validity and utility of these scales have been acknowledged *even by anti-mystics*. The use of questionnaires has proven reliable in predicting treatment outcomes and in factor analysis. Additionally, this framework offers resources that other measures lack. Breeksema and van Elk highlight various psychological instruments and scales, including the Hood Mysticism Scale (HMS), Mystical Experience Questionnaire (MEQ), and Ego Dissolution Inventory (EDI), emphasizing their value in empirically measuring the phenomenology of non-ordinary subjective experiences induced by psychedelics. These scales help map out "the phenomenology induced by different psychedelic substances". The Inventory of Non-Ordinary Experiences (INOE), in particular, "helps researchers distinguish between the extraordinary experiences that people report… and the interpretation or attribution that people make about this experience…".[103]

Nonetheless, a genuine worry worth considering is that the use of a mystical framework might pose methodological challenges, as mystical terminology could influence subjects in unforeseen ways, affecting how they report and understand their experiences. As Mosurinjohn et al. caution: "it is critical to highlight that different labels give rise to distinct connotations and semantic associations that can impact their interpretation and their perceived relatedness to other concepts and constructs".[104] Similarly, Strassman contends that:

> One of the questions I brought to bear on my DMT studies was that of the drug's "inherent spirituality," a notion to which Richards subscribes… Not as convinced, I wondered if in a neutral setting with nearly no expectations… DMT [would] produce an enlightened mystical experience? Our results indicated that DMT in and of itself was only "psychedelic," not "mysticomimetic." Volunteers' experiences were consistent with their preexisting personalities, goals, hopes, fears, and current relationships. It was clear that a program of preparatory indoctrination, manualization of session supervision, and extensive integrative work was necessary to direct the "meaning-enhancing" effects of the drug toward spiritual goals.[105]

The suggestion here, then, is that openly pro-mystical researchers like Richards may (wittingly or unwittingly) be manufacturing findings congenial to their views. There are at least two ways this could happen: the "preparatory indoctrination" of volunteers could affect how they describe and conceptualize their experiences *after* the fact, but it could also affect the experiences *themselves*, given the well-known susceptibility of the psychedelic state to "set and setting" (the subject's psychological state and the session environment).

This concern is crucial, particularly when separated from broader metaphysical questions about whether mystical realities exist. Now, we can tackle it directly and with a minimum of confusion. To do so, let's explore two potential ways mystical experiences might arise:

The first possibility is that certain characteristics of mystical experiences are caused directly by a neurocognitive mechanism activated by psychedelic consumption. If this is true, the defining phenomenological characteristics would remain fairly consistent regardless of how they were interpreted by individuals (similar to how inner ear disruptions consistently cause dizziness, regardless of cultural background or interpretation). In this scenario, using mystical terminology in *post*-session questionnaires wouldn't distort whether and how the experience occurs, why it occurs, and if it's therapeutic. However, such terminology could still be beneficial practically. It may help individuals better articulate or understand their experiences based on their cultural background or beliefs, providing them with verbal resources they find more intuitive. Therefore, mystical constructs could be valuable for diagnostic and research purposes without distorting the phenomenon itself.

Now let's consider a second possibility. Let's imagine that the phenomenological properties associated with a paradigmatically mystical experience are not simply the brute result of a particular neurocognitive mechanism when psychedelics are taken, but instead result from the interaction of many complex factors. A participant's explicit or implicit beliefs regarding personal identity or the supernatural, cultural influences, past experiences, and the linguistic framework they adopt, may all dynamically interact and influence each other, producing a distinct way that a subject interprets and/or experiences the effects of psychedelics in particular contexts. This would certainly be supported by Strassman's observation that volunteers' experiences were "consistent with their preexisting personalities, goals, hopes, fears, and current relationships." If this turns out to be the case, then by priming subjects with questionnaires that make use of mystical terminology, we may be inadvertently distorting the results of those experiments by biasing subject responses and thus changing what they experience, and how they experience it.

However, simply avoiding mystical terminology on questionnaires won't solve the problem. Indeed, *any* questionnaire asking about specific experiences, regardless of the language used, can influence how participants interpret their psychedelic experiences and potentially alter their reported characteristics and therapeutic outcomes. Simply swapping mystical terms for secular ones wouldn't address this issue – we would simply end up biasing participants in favour of an "connectedness framework" or a "psychological insight framework" instead of a "mystical framework". It seems, then, that the anti-mystics' arguments here prove too much: if heeded consistently, they would lead to the total removal of psychometric methods from psychedelic research.[2]

Is this, then, what we should do – refrain from providing any description of the experience on questionnaires and instead allow subjects to use their own terms? We see no objection to pursuing this project, as part of the overall, ongoing research effort to understand how best to describe psychedelic experiences and explain their therapeutic effects. It would, indeed, be interesting to see what would emerge from a clinical trial of psychedelic therapy with a maximally mystically neutral approach and only qualitative interviews – no psychometric questionnaires at all. There has already been a healthy interplay between psychometrics and qualitative research in psychedelic science, with new questionnaires being developed to operationalize constructs that emerged spontaneously from qualitative findings.[106] At some point, however, to get the sort of quantitative data we want, the psychometrics will have to go back in. And it is an open question what will emerge.

In the end, this is the most general and basic point that we want to make. We do not know whether the construct of mystical (type) experience will retain its present exalted place in psychedelic science, or be displaced by some (already existing or as yet unknown) alternative. This is a scientific and clinical question, to be decided by how well the construct performs, and whether it does the things that scientists and clinicians need it to do. The decision should not be based on a mistaken belief that the construct itself carries non-scientific metaphysical commitments (it does not), nor on a suspicion that some scientists using the construct *personally* accept such commitments (though some certainly do). It should not be based on the potential for non-specialists or grant proposal reviewers to misunderstand the technical meaning of the construct, nor on demonstrably false speculations about the construct's prevalence inhibiting the development of alternative frameworks. While there is, of course, ample room for critical scrutiny of the historical and sociocultural contexts and potential biasing effects of scientific ideas, it should not be based on the personal metaphysical, religious, or philosophical views of those who originally devised the construct. It should not even be based on whether the construct reflects the real mechanistic structure of the mind/brain accurately. In general,

[2] Similar remarks apply to some of G&E's concerns about measuring or verifying mystical experiences, which would seem *prima facie* to apply to any scientific study of any conscious experience whatsoever.

the decision to keep or abandon a psychological construct should be based on whether the construct adequately serves the purpose for which it is employed by scientists and clinicians. Determining this can at once be a simpler and a more complex affair than is sometimes acknowledged in these debates.

Conclusion

Since Sanders and Ziljmans urged psychedelic researchers to abandon the "mysticism framework" a few short years ago, a heated debate has ensued. While we do not think that this framework or any other should be immune from critical scrutiny, we ultimately side with the pro-mystical camp. We have tried to show that the major arguments for abandoning mystical terms or concepts, or reforming our understanding of them, stem from a small set of errors and confusions that run from S&Z's original paper through to Garb and Earleywine's more recent fictionalist manifesto. Perhaps the most fundamental error common to various anti-mystical critiques, in our view, is to urge the abandonment or reform of a scientific construct on *a priori*, extra-scientific grounds. We do not wish to legislate against such critiques in the abstract, however, so we have focused on discussing their substance.

Our central contentions can be summarised as follows. First, no matter how it might be misunderstood by those within or without the field, the construct of mystical-type experience as actually used in psychedelic science carries no commitment to the existence of mystical realities. Discourse about mystical realities can safely be omitted from psychedelic science as it plays no indispensable role there; discourse about mystical (type) experiences can safely be retained, as there currently are no serious grounds for doubt that such experiences really occur. It is possible to doubt how frequently they occur without researcher intervention, and to wonder what roles priming might play in their conceptualization and description – but these are empirical questions to be addressed by conducting *more* research into the construct, not less. Second, even if the construct of mystical-type experience fails to carve neural or cognitive reality at its joints, it may still be a legitimate construct worth retaining, if it performs valuable scientific or clinical functions. Third, even if mystical terminology is liable to be misinterpreted by laypeople or grant proposal reviewers, this does not warrant its removal from a scientific field. Fourth, the real possibility that the mystical-type experience construct might be superseded scientifically in future is not a good reason to abandon it now. Fifth, and finally, even if the development of the mystical-type experience construct was influenced by scholars' metaphysical beliefs, this fact does not impugn the current scientific legitimacy or utility of the construct.

Consistent and careful recognition of these points would, in our view, go a long way towards ending the mysticism wars in psychedelic science. This, in turn, would allow the field to focus on determining – on appropriate and compelling grounds – whether the "mysticism framework" merits its current dominant position or not. Only time, and the ordinary practice of science, will tell.

Notes

[1] Mattu's contribution to this research was supported by Dr. Jacqueline Sullivan's SSHRC award grant and the Rotman Institute of Philosophy.
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