

Atheistic Mysticism

Eric Steinhart

www.ericsteinhart.com

ABSTRACT: Eleven detailed cases of atheistic mystical experience are examined. They all satisfy the standard hallmarks of mysticism. Their subjects present them as truthfully revealing deep aspects of nature and only nature. These cases constitute an empirical dataset. Five themes emerge from these cases: structural insight, wholeness, extremity, dissolution, and valuable connection. These five themes motivate a specific structuralist interpretation of atheistic mysticism. This version of structuralism provides a way to integrate these experiences into a mystical yet rational view of nature.

1. Introduction

Atheists have mystical experiences. They do not regard their experiences as merely subjective or meaningless. They say their experiences have intentionality; they are about reality; they reveal objectively existing features of reality. But what do they reveal? On the one hand, they often reveal that the structure of reality is much larger and richer than the structure mapped by the empirical sciences. On the other hand, they do not reveal the existence of any theistic entities (God, the Divine Mind, the World Self, and so on). The structure of reality is entirely Godless. But if atheistic mysticism is not merely about the objects revealed by the empirical sciences, and if it rejects the objects posited by theists, then what are its objects? What does atheistic mysticism reveal?

I will try to answer these questions here. To answer them, I began by searching the literature for cases of atheistic mysticism. I used generic definitions of mysticism and atheism. For the sake of method, the search was restricted to cases involving scientists, philosophers, and journalists. These professions are interested in the truth, and their practitioners are trained to be truthful. For the sake of focus, this search was restricted to recent Western literature. However, some ancient cases are relevant too. Within these restrictions, eleven clear cases of atheistic mystical experiences were located. These eleven cases serve as the dataset for further analysis and interpretation.

These cases were analyzed for similar elements. They almost all begin with the visual perception of reality. Their subjects present them as observation reports about reality. These atheistic mystics all sincerely present their experiences as being revelatory, that is, as truly portraying objectively existing features of reality. When they present their cases, they make factual claims about reality. From their sincerity, from their training, and from principles of charity, it is reasonable to infer that these experiences provide some positive degree of experiential justification for some beliefs about reality. They provide some evidence for propositions about reality. Clearly, this evidence may be very weak; however, the present study is concerned only with content.

To find their shared doxastic contents, these eleven cases were studied side-by-side. Five thematic beliefs about nature emerged from this comparison. These themes are: structural insight, wholeness, extremity, dissolution, and valuable connection. To see whether these shared themes refer to any features of reality, I turn to metaphysics. One

recent metaphysical theory very closely matches these themes. This metaphysics is *structuralism*. Since the atheistic mystics present their experiences as being about reality, rather than about our knowledge of it, this structuralism is ontic rather than epistemic. Among the many varieties of ontic structuralism, one version turns out to correlate very well with the themes in atheistic mysticism. It should come as no surprise that this version is Pythagorean and Platonic. Both Pythagoreanism and Platonism have long been associated with mysticism. And they can be understood atheistically.

Pythagoreanism supplies the atheistic mystic with the world of mathematical objects. For the Pythagorean, these are not distinct from physical things. As the physicist Max Tegmark puts it, physical existence *is* mathematical existence (2008, 2014). For the Pythagorean, nature is a purely mathematical structure. Hence mathematical objects are entirely natural objects. Thus atheistic mysticism reveals truths about nature. Platonism supplies the atheistic mystic with two other objects: the One and the Good. Although theists love to identify those with God, both of those objects can be understood atheistically. A long tradition denies that the One is God. And Iris Murdoch (1970, 1992) has recently defended a non-theistic interpretation of the Good. Consequently, if the reasoning here is sound, then atheistic mysticism provides some experiential justification for a specific Pythagorean-Platonic structuralism. Reality is a purely mathematical structure whose *arche* is the One and whose *telos* is the Good.

2. Eleven Atheistic mystical Experiences

A search of the relevant literature produced seventeen apparent cases of atheistic mysticism. Six were excluded because they did not meet the criteria of this study.¹ The remaining eleven cases meet all the criteria. They are atheistic because they do not involve any theistic or unnatural agents. They are mystical because they have the standard hallmarks of mysticism (e.g. ecstasy, ego dissolution, time alteration, personal transformation, ultimacy, etc.). Or their subjects or biographers sincerely said they were mystical. The authenticity of these experiences is accepted here.

(1) Nietzsche had mystical experiences. During early August 1881, at a rock beside Silvaplana Lake, in the Swiss Alps, near Sils Maria, Nietzsche had a mystical experience (Gutmann, 1954). He characterized his experience as occurring “6000 feet beyond man and time” (*Ecce Homo*, III.Z.1). Mountain imagery plays an important role in Nietzsche’s thought. It is plausible that his mystical experience was aroused by the spatial vastness of the Alps and by reflection on the temporal vastness of eternity. It was during this experience that he understood the eternal return. He became aware of the totality of existence, and he gained the structural insight that that existence at the most extreme scale is circular. Around this time, he wrote about tremendous moments of ecstasy in which all of existence was absolutely affirmed (*The Gay Science*, 277, 341). He became aware of the extreme value of every thing as well as the extreme suffering produced by the destruction of all value by time (*Will to Power*, 1065). But the eternal return redeems existence by reproducing every valuable thing infinitely often. His experience plunged him into the intensely Dionysian holiness of existence. Thanks to the eternal return, he “regards existence as being *“holy enough* to justify even a monstrous

amount of suffering” (*Will to Power*, sec. 1052, his italics). The circular structure of existence reveals that things are connected in a valuable way.

(2) John Dewey had mystical experiences. Aisemberg reports that “Dewey had several mystical experiences, the most notable . . . occurring in the early 1880s in Oil City, Pennsylvania” (2008: 25). Rockefeller reports that Dewey “had experiences involving an intense poetic and mystical realization of the presence of the All” (1991: 330). According to Aisemberg, these were intense experiences of “being intimately part of and belonging to the reality and presence of the vast enveloping continuum which is the all-inclusive universe” (2008: 26). And Dewey himself writes that “there is the mysticism of intense aesthetic experience independent of any theological or metaphysical interpretation” (1934: 36). His experiences seem to be elicited by the extremity of the All. They seem to provide him with some structural insight, namely, that he is a part of this larger whole, and that the All is organized in an aesthetically rich way.

(3) John McTaggart had mystical experiences (Dickinson, 1931: 46, 92-8). He says mysticism “asserts a greater unity in the universe than that which is recognized in ordinary experience, or in science” (1934: 47). For him, mystical experience revealed that reality is a network of spirits unified by love (Mander, 1996). However, this network contains no God. Thus “In mystic vision McTaggart seemed to *see* that the world is nothing but love, nothing but persons loving each other” (Geach, 1995: 569). McTaggart regards love “not as an isolate event in the middle of others, but as the principle of unity by which the universe is constituted” (1934: 62). This is not ordinary love; it is love as the ground of being. McTaggart participates, through it, in an extreme totality. His experiences provide him with some insight into the deep structure of existence: it is a network of spirits joined by love. They are fused by love into a whole.

(4) Bertrand Russell had a mystical experience in 1901, which he described in his autobiography (1967: 149). During this experience he realized that “the loneliness of the human soul is unendurable; nothing can penetrate it except the highest intensity of the sort of love that religious teachers have preached” (149). Here Russell points to extreme isolation; he points to the extreme social distance of the self. Russell said his experience radically ethically transformed him (Brink, 1984). He said “At the end of those five minutes, I had become a completely different person” (149). His ethical and political beliefs were suddenly inverted. For example, he changed from imperialist to pacifist. For weeks afterward, he remained “filled with semi-mystical feelings about beauty” (149). He retained an appreciation for the positive emotions and dispositions aroused by mysticism, but not for its production of superstition (Russell, 1918). He credits this five-minute experience for shaping the rest of his long political life. His experience was aroused by extreme suffering and seemed to point to extreme love.

(5) Arthur Koestler was an atheist writer who describes a mystical experience (1969: 428-30). While working as a journalist during the Spanish Civil War, he was accused of being a spy and thrown into prison. He passed the time there by etching mathematical texts into the walls with a piece of iron. One of these texts was the Euclidean proof that there are infinitely many primes. As he contemplated this proof, Koestler was overcome with ecstasy. Mathematics has long been connected with mysticism; but Koestler’s experience is a vivid example of mathematical mysticism without God. The endlessness of the series of primes resembles the vastness of space or the eternity of time. It points his mind towards infinity; but infinity is an extreme which transcends every prime. His

experience provided him with insight into the deep structure of existence: “for the first time the veil has fallen and one is in touch with ‘real reality’, the hidden order of things, the X-ray texture of the world, normally obscured by layers of irrelevancy” (429). He suddenly dissolved into the reality of mathematical infinity. He says “the I had ceased to exist” (429). He dissolved into the structure.

(6) Pierre Hadot had mystical experiences starting in his adolescence in the 1930s and 1940s (2011: 5-12, 75-8). They were “the discovery of something overwhelming and fascinating that had absolutely no connection to the Christian faith” (6). They were “entirely foreign to Christianity” (7) and did not “involve either God or Christ” (8, 76-8). His experiences were almost always provoked by the perception of nature. They were aroused by the sight of the stars blazing in the night sky (5-6); or by the sight of the Alps (6). He said “I looked toward the sky at night with the impression of plunging into the starry immensity” (6). During these experiences he says “I was filled with an anxiety that was both terrifying and delicious, provoked by the sentiment of the presence of the world, or of the Whole” (5). He had the feeling “of being immersed in the world, of being a part of it, the world extending from the smallest blade of grass to the stars” (6). He refers to these experiences as oceanic; they involved ecstatic ego-dissolution (6-9, 78). He distinguished his experiences from mere wonder (8). He said they involved “the impression of being a wave on a limitless ocean, of being part of a mysterious and infinite reality” (8). These experiences were aroused by the vastness of space and the richness of the Whole. Through them, he participated in an extreme totality. He was aware of structural features of the world: of being a part of the world, and of the world as a network of relations extending from the grass to the stars.

(7) The biologist and religious naturalist Ursula Goodenough writes about her mystical experiences (1998: 100-3). Goodenough is an atheist; she does not believe in any personal gods or God (102). She writes instead about “Immanence or Presence”. She says “when I am invaded by Immanence, most often in the presence of beauty or love or relief, my response is to open myself to its blessing. It is the path to the holy” (102). And, overwhelmed by the beauty of life, she writes that “The continuation of life reaches around, grabs its own tail, and forms a sacred circle” (171). This sacred circle requires no God. It resembles the Nietzschean eternal return. For Goodenough, the content of mystical experience involves beauty and love.

(8) The philosopher Andre Comte-Sponville describes himself as a spiritual atheist. He describes his mystical experiences in detail (2006: ch. 3). Comte-Sponville reports that his first mystical experience was aroused by the vastness of the sky: “Above me, the starry sky was immense, luminous and unfathomable” (156). He experiences himself as *a part of* this vast whole: “within me there was nothing but the sky, of which I was a part” (156). His mystical experiences point his mind towards the extremity of the All, the Whole, or being-itself. As his awareness expands out into the extremity of the All, he reports the ecstatic dissolution of the boundary between his self and the All: “the ego had vanished” (157). His awareness becomes awareness-itself (168). As the boundaries of his self vanish into the boundlessness of the All, he experiences “the silent *presentation* of everything” (157, his italics). He experiences “the beauty, truth and presence of everything” (157). His awareness shifts from the ontic to the ontological. Ontic awareness is the awareness of beings among beings; ontological awareness is the awareness of being-itself. Thus is aware of “this palpitation of being within me” (157).

Three times he says “All that remains is being” (162, 165, 166). And he says “You were being? All that remains is being itself” (168). He says it was “much like a revelation, but without God” (158). Light plays an important role in this self-revelation of being-itself: “The mystery of being is the light of being” (163). Upon this dissolution, there is only absolute joy, indescribably painful love, and empty luminosity.

(9) Richard Dawkins seems to have had mystical experiences. After describing how one of his teachers had a religiously significant mystical experience, Dawkins says “much the same mystic feeling is common among scientists. I am only one of many who have experienced it” (2003: 59-60). Dawkins refers to an apparently mystical experience he had as a boy in Africa (2008: 31-2). He was dazzled by the stars, heady with the night scents of flowers, and “tearful with the unheard music of the Milky Way.” When sees things like the Milky Way, the Grand Canyon, or looks through a microscope, he says “I’m overwhelmingly filled with a sense of almost worship . . . It’s a feeling of sort of an abstract gratitude that I am alive to appreciate these wonders” (2009: 1:44-2:55). When he hears great music, sees great architecture, or looks at the Grand Canyon, Dawkins says “I do get a feeling which is probably akin to what religious people feel when they experience what they call a mystical experience” (2013). He says deep time and deep space arouse in him feelings of the sacred and the holy (2004). His mystical feelings are aroused by natural extremities: by things that are extremely far, old, large, small, or detailed. His experiences point his thoughts towards the extremity of nature as a whole. Through them, he participates in an extreme totality. He argues that science, not religion, reveals these extremities in all their glory (1998; 2017). Thus science produces awe, ecstatic transport, epiphanic wonder (2017: 269). His experiences give him the insight that the world has a rational structure to be explored by science.

(10) Ravers have atheistic mystical experiences. Ravers dance to electronic music, often under the influence of drugs like MDMA (aka Ecstasy). Electronic dance music is highly rhythmic and strikingly mathematical. As they dance, ravers often enter hyper-arousal trances. Sylvan (2005) interviewed hundreds of ravers. They reported to him that, during their trances, they typically experienced a powerful energy flowing through their bodies; they experienced this energy flowing through all things; they experienced the dissolution of all things, including their own bodies and selves, into this energy. They experienced “a sense of unity and being part of a larger whole” (72). Thus one raver reports “stepping outside of this world of limitations and stepping into this world that was just pure energy and this bigness, this space” (72). Much like McTaggart, they seem to experience existence as a network of selves connected by love. They seem to dissolve into an all-encompassing wholeness, into an undifferentiated totality.

(11) The physicist Alan Lightman describes a mystical experience (2018: 5-6). He was boating on the ocean on a summer night, from the coast of Maine to a small island where he lived. He turned off the engine and running lights and lay back in the boat to look up at the stars when he stated that he had a mystical experience (6). He became intensely aware of “the vast expanse of time” (6). He said he “felt an overwhelming connection to the stars, as if I were part of them” (6); he said “I felt connected not only to the stars but to all of nature, and to the entire cosmos” (6). He said “I found myself falling into infinity” (6). He experienced an intense dissolution: “The boat disappeared. My body disappeared” (6). Finally, he felt “a merging with something far larger than myself, a grand and eternal unity, a hint of something absolute” (6). He said that, after

his experience, “I remained a scientist. I remained committed to the material world” (7). Nevertheless, he said his experience revealed to him “the Absolutes – ethereal things that are all-encompassing, unchangeable, eternal, sacred” (7).

3. The Five Themes in Atheistic Mysticism

All eleven cases present their mystical experiences as being truthfully about nature. They do not dismiss them as brain-events lacking reference; on the contrary, they present them as directed towards or pointing to objectively existing aspects of the natural world. An interpretation of these experiences tries to clearly analyze the content of these experiences: if they were true, what would they reveal? To interpret these experiences, it will be useful to find the themes shared by all eleven cases.

Five themes emerge from the eleven cases.ⁱⁱ (1) The first theme is *structural insight*. Nine cases gained some structural insight into existence. They became aware of their participation in some natural system of relations. They realized that there was a deep or hidden order to the world; or that the elements of the world are arranged in beautiful ways; or that they were nodes in some network of loving connections. (2) The second theme is *wholeness*. Seven cases indicated that became aware of being contained by or being parts of some surrounding whole or encompassing totality. (3) The third theme is *extremity*. Ten of these cases indicated that their mystical experiences were elicited by extreme aspects of existence. The structure in which they participate is maximally inclusive. The whole is an all-encompassing totality. The wholeness is open rather than closed; it is infinite or boundless. (4) The fourth theme is *dissolution*. Five cases indicate that their selves dissolved into the wholeness – they lost their unities. (5) The fifth theme, found in five cases, is *valuable connection*. Connection is love; but disconnection is suffering. Love binds all things together into the network.

The themes of structural insight and wholeness suggest that the metaphysical picture painted by atheistic mysticism is holistic and relational. Thus nature is a purely relational structure. McTaggart thought of the world as a network of spirits bound together by love. Nietzsche thought of the world as a network of force-points constituted by dynamical power relations (Moles, 1990). These themes suggest that some kind of *structuralism* is the best way to interpret atheistic mysticism. Here structuralism just means that objects are constituted by their positions in networks of relations (Shapiro, 1997). As an illustration of structuralism, Dipert (1997) argues that the world is an enormous connect-the-dots diagram. More precisely, nature is a graph. Existing objects, including atheistic mystics, are subgraphs of this connect-the-dots network. This graph unfolds at least into the immensities of our observable universe. Five atheistic mystics (Dewey, Hadot, Comte-Sponville, the ravers, Lightman) report being keenly aware of being parts of some larger structure or whole. They are intensely aware of their inclusion in the All.

The theme of extremity indicates that the structure revealed in atheistic mysticism has no bounds. Nietzsche sees more than just some circle of events. He sees a two-way infinite series of type-identical universes (*Zarathustra*, III:2/2). When Koestler sees the infinite series of prime numbers, he sees that the structure of the world transcends every finite specification. When he sees the order behind and beyond the phenomenal veil, he sees that the structure surpasses all observable bounds. Comte-Sponville indicates that

the All may be a multiverse composed of infinitely many universes. Hence the whole is bounded neither by observability, nor by the physical scale of any single universe, nor by any plurality of universes. It surpasses every bound; the structure is boundless. Hadot and Lightman explicitly refer to infinity. Several atheistic mystics say that the whole is *all-inclusive* or *all-encompassing*. They portray nature as that structure than which none more inclusive is possible. If they are right, then every consistently definable structure is a *proper* part of nature. Any definition of nature as a completed totality just serves as a basis for the further extension of the natural structure. Hence the theme of extremity points towards *absolute infinity*. Nature is indefinitely extensible. It can be defined only negatively or apophatically as an unsurpassable whole of surpassable parts.

The fourth theme of atheistic mysticism is *ego dissolution*. Five atheistic mystics experience ego dissolution. During ego dissolution, they do not black out; they remain conscious and they remain conscious of something. They remember their experiences and they write about them. Their descriptions of ego dissolution suggest that they retain the semantic conditions needed for truth. Their brain-states somehow refer to or veridically correspond to something in the external world. Hadot writes that dissolution involves “the pure feeling of existing” (2011: 8). Comte-Sponville writes that in mystical ecstasy “What fulfills you then is not a particular state of being but being itself” (2006: 165). He says that in ego dissolution “All that remains is being itself” (168).

This fifth theme of atheistic mysticism states that the connections in the network are valuable. All value emerges from the ways that membership binds things together into structures. Value is relational, in the sense that only structures have value. But value is also intrinsic, in the sense that it inheres in the structures themselves and not merely in the minds that evaluate them. McTaggart and Russell mention the positive value of love. Holiness was mentioned by Nietzsche, Goodenough, and Dawkins. It is closely related to sacredness, mentioned by Dawkins and Lightman. Since this value is extreme, and since holiness is usually thought to denote extreme value, this fifth theme asserts the holiness of nature. The relational structure of nature is holy.

4. Atheistic Mysticism and Relational Structure

The first three themes of atheistic mysticism reveal that nature is a purely relational structure. But the science of purely relational structure is pure mathematics. So the first three themes suggest that the best way to interpret atheistic mysticism comes from pure mathematics. The first three themes also reveal that nature is absolutely infinite. But the science of infinity is pure mathematics. So again the first three themes suggest that the best way to interpret atheistic mysticism comes from pure mathematics. From the ancient Pythagoreans to the present, mathematics and mysticism have been closely associated. So we will use pure mathematics to interpret atheistic mysticism.

The theme of *structural insight* reveals that nature is a great connect-the-dots network. The most straightforward way to express this theme comes from *class theory*. Class theory describes a connect-the-dots network in which the dots are classes and the connections are instances of the membership relation. Class theory starts by defining the *sets*. Sets are classes that are members of greater classes. Class theory begins with the simplest set, namely, the empty set $\{\}$. The empty set $\{\}$ is a member of the unit set

$\{\{\}\}$. This instance of the membership relation can be represented by an arrow. Thus $\{\} \rightarrow \{\{\}\}$. Now both $\{\}$ and $\{\{\}\}$ are members of the set $\{\{\}, \{\{\}\}\}$. Thus we have $\{\} \rightarrow \{\{\}, \{\{\}\}\}$ and $\{\{\}\} \rightarrow \{\{\}, \{\{\}\}\}$. All these sets can be represented by dots. The dots are distinguished from each other by their positions in the network of membership arrows. All these sets are *pure* in the sense that their members are only other classes. Simpler sets are members of more complex sets. And simpler sets combine in all possible ways to make more complex sets. As they do, they generate the *iterative hierarchy of pure sets*, known by the name V . V is the collection of all sets. Of course, on pain of paradox, V itself cannot be a set. V is a collection that is too extreme to be a set. Thus collections like V are known as *proper classes*. Proper classes are not members of greater classes. They inhabit the horizon of nature.

The theme of structural insight also involves a distinction between the apparent surface structure of nature and its deep structure. The surface structure is phenomenal (and usually visual). Atheistic mystics see through the veil of physical phenomenality into the ultimate structure of nature. Thus Koestler said that, in mysticism, “the veil has fallen and one is in touch with ‘real reality’, the hidden order of things, the X-ray texture of the world, normally obscured by layers of irrelevancy” (1969: 429). This distinction between reality and appearance is familiar from ancient Pythagoreanism. Although we appear to be looking at physical things which are not mathematical, the ancient Pythagoreans said that in fact we are looking at purely numerical structures. The distinction between the physical and the mathematical is illusory. The truth is that there is no such distinction: physical things are mathematical structures.

Ancient Pythagoreans said that all things are numerical structures. But modern Pythagoreans argue that all things are class-theoretic structures. Atkins writes that “the deep structure of the universe may be a globally self-consistent assemblage of the empty set” (1992: 115). When dealing with ultimate reality, Dawkins recommends Atkins view that our universe is an elaboration of the empty set (1986: 14; 2008: 143-4). Rucker writes that “If reality is physics, if physics is mathematics, and if mathematics is set theory, then everything is a set” (1995: 200). When you look at anything in our universe, from your hand to the Milky Way galaxy, you are looking at a pure set. Rucker argues further that all possible universes are pure sets (1995: 200-2). On this view, all possible physical things are substructures of the iterative hierarchy of pure sets.

Atheistic mysticism stresses the unity (not duality) of reality. And Pythagoreans are monists rather than dualists. Pythagoreans do not oppose mathematical reality to physical reality. All reality is purely mathematical. Steiner (1998: 4-5) discusses two versions of Pythagorean monism. The first is *metaphysical Pythagoreanism*. It says that physical things are in fact purely mathematical. The physical Max Tegmark has argued extensively that physical existence *is identical with* mathematical existence (2008, 2014). The second version is *conceptual Pythagoreanism*. It says that mathematical structures are the essences or natures of physical things. According to this version, physical relations supervene on mathematical relations; hence physical structures (that is, physical things) supervene on mathematical structures.ⁱⁱⁱ On either version, the existing things are just pure classes. Physical things are purely mathematical objects.

According to modern class-theoretic Pythagoreanism, all human animals intuitively participate in the structures more explicitly defined by class theory. Of course, intuitive participation in mathematical structures does not require explicit mathematical

knowledge. You can intuitively appreciate the Golden Spiral without knowing anything about its logarithmic equations. You can be intuitively aware of spatio-temporal relations without knowing anything about the formal construction of Minkowski space-time. You can hold a rock without being aware of the Standard Model of Matter or the quantum mechanical theories of the interior of the proton. Analogously, you can participate in class-theoretic structures without any explicit class-theoretic knowledge. During their mystical experiences, atheistic mystics realize that nature is a purely relational structure. But they need not thereby become aware of the axioms of class theory. Making those axioms explicit is the task for later interpretation. One of the first class theorists, namely, Georg Cantor, was also a mystic (Dauben, 1977; Hallett, 1988: ch. 1). His mystical vision partly drove him to articulate the theory of classes. And while Cantor was a theist, atheists can dispense with the Cantorian God in favor of classes alone.

Just as atheistic mysticism claims to represent the ultimate structure of nature, so too does class theory. Many writers have argued for the ultimacy of class theory: the most basic particular objects are the pure classes. Quine said that “to be is to be the value of a bound variable” (1948). Consider “Socrates exists”. Quine reformulates this existence statement as (there exists x)(x is Socrates). The expression “there exists” is the existential quantifier \exists . Thus “Socrates exists” means that $(\exists x)(x = \text{Socrates})$. Socrates is the value of the variable x , which is bound to the existential quantifier. Over the course of many articles (1976, 1978, 1981, 1986), Quine argues that the values of the variables are exactly the pure classes: pure classes are the only existing things. Class theory is the fundamental theory of existence. No objects are deeper than the classes.

The second theme of atheistic mysticism is *wholeness*. Since the membership is an inclusion relation, class theory can handle part-whole structures. To say that the class *xander* is a *subclass* of the class *yonder* means that every member of *xander* is also a member of *yonder*. Subclasses are parts of their classes. Focus on the iterative hierarchy V . The iterative hierarchy is the greatest connect-the-dots network; it is that graph than which none greater is logically possible. Every class (including every proper class) is a part of V . Some structures in V are composed entirely of sets. These set-graphs are both parts of V and members of V . So there is a direct membership arrow from every set-graph in V to V itself. Every possible universe is both a part of and a member of V . Every physical thing in every possible universe is both a part of and a member of V . The body and brain of every human animal is both a part of and a member of V . The proper class V is the maximally inclusive whole. It is that whole than which none more inclusive is logically possible. It is therefore plausible that *the All* of Comte-Sponville refers to V . Mystical atheism intuitively reveals the wholeness of V . Of course, to explicate this wholeness in terms of precise axioms is a later interpretive task.

On the class-theoretic interpretation, atheistic mysticism begins with an awareness of physical inclusion. The atheistic mystic is aware of being part of some physically larger whole like the Milky Way or the universe. But mystical awareness reveals that this physical inclusion is superficial. Hence the atheistic mystic becomes aware that physical inclusion is merely the phenomenal presentation of some deeper and absolutely greater inclusion relation. The atheistic mystic thus becomes intuitively aware of the relation of pure class-theoretic inclusion. According to our Pythagorean analysis, the atheistic mystic becomes intuitively aware that they are a part of V . Moreover, the atheistic

mystic is intuitively aware of *direct* participation in the All. On our analysis, this is intuitive awareness of direct membership of the body of the mystic in V.

The third structural theme of atheistic mysticism is *extremity*. Physical inclusion tops out at our universe (the largest structure that physically includes your body). Although the universe is large, it is arguable that its size does not match the extremity revealed in atheistic mysticism. Nietzsche saw that every universe is surpassed by the infinite expanse of the eternal return. Koestler saw the infinity of prime numbers. Hadot and Lightman also saw infinities. It is arguable that atheistic mysticism becomes intuitively aware of an infinity which is *absolute*. It is *unsurpassable* or *transcendental*. Class-theory provides the needed interpretation for this intuitive awareness. Class-theory defines an absolutely endless series of ever greater infinities. These are more precisely defined by the large cardinal axioms (Drake, 1974; Kanamori, 2005). And the proper classes truly unsurpassable. Class-theoretic *reflection principles* entail that every effort to fully specify any proper class only specifies some set that lies within it (Welch & Horsten, 2016). Thus proper classes are *ineffable*. They are *transcendental*.

Focus on the maximal whole V; V is the All. Every set-structure is both a member and part of V. And every other proper class is a part of V. As a proper class, V is ineffable and transcendental. The brains and bodies of mystics are set-structures in V. When the brain of the atheistic mystic becomes intuitively aware of an all-inclusive and absolutely infinite structure, it becomes aware of its direct and unmediated membership in V. It becomes intuitively aware of its immediate participation in an ineffable and transcendental plenitude. It becomes intuitively aware of its direct participation in the All. And, if this awareness really is awareness of membership in an all-inclusive totality, then it is also the awareness that every thing is part of this totality. This awareness of inclusion spills over into awareness of membership itself.

5. Atheistic Mysticism and Ego Dissolution

The fourth theme of atheistic mysticism is ego dissolution. Hadot and Comte-Sponville portray this as a shift from the awareness of beings into the awareness of being-itself. But what is being-itself? Mystics traditionally approach being-itself through a series of stages. Each later stage involves a deeper understanding of being-itself. Thus each later stage reveals a deeper manifestation of being-itself. It reveals the deeper meaning of being-itself. For the class-theoretic Pythagorean, there are three stages. The first stage involves a well-individuated ego; the second stage involves an ego on the liminal threshold of dissolution; in the third stage, the ego is dissolved.

The first stage begins with the awareness of the inclusion of the body of the atheistic mystic in some larger visible physical whole. The mystic sees himself as expanding into some greater physical environment. This is the awareness of a series of ever-larger parts of the All. And this is *ontic awareness*. Ontic awareness concerns itself with the parts of the relational network of beings. The brain has an ego which represents a whole. A whole is any class that has members. During this stage, the awareness of the mystic expands to include ever-greater enclosing parts of the All. This stage ends with the awareness of the All itself, that is, the ontic awareness of the proper class V. Here being-itself manifests itself as the maximal network of beings. This first stage involves only

first-order awareness. It is the awareness of first-order beings. These are the beings that are the values of the first-order variables. These are particular beings, that is, they are the classes. The greatest particular is the proper class V . Here being-itself is understood as the transcendental totality of all the particular beings.

This second stage of the awareness of being-itself occurs as first-order awareness surpasses itself into second-order awareness. While first-order awareness refers to particulars, second-order awareness refers to universals. During this second stage, being-itself reveals itself as that which all beings have in common. Being-itself is that in which they all participate (Wainwright, 1971). So beings are to being-itself as particulars to some universal. Being-itself is the most abstract universal; it is the universal essence of all beings. Our Pythagorean structuralism facilitates thinking clearly about being-itself as that which all particular beings share. For the structuralist, what all particulars have in common is *relationality*; all particulars participate in relations. According to our Pythagorean structuralism, this relationality is made precise: all particulars participate in *membership*. Every class is either a set or a proper class. If a class is a set, then it is always a member of at least one other class; if a class is a proper class, then some sets are a member of it. Being-itself reveals itself as the membership relation.

Class theorists reduce most universals to particulars. The universal *humanness* is just the class of all particular humans. And this class is itself a particular. The class of humans is the extension of the universal *humanness*. Class theorists say that universals are identical to their extensions. But two universals cannot be reduced to particulars. Since there is no class of all classes, the universal *classness* has no extension. And since there is no class of all (x, y) such that x is a member of y , the universal *membership* has no extension.^{iv} Thus classness and membership are *pure universals*, which cannot be reduced to any extensions. They cannot be identified with any particulars. Since classes are defined by membership, it is arguable that *classness* is just a manifestation of *membership*. Membership is the deepest pure universal. Logicians say that particulars are the values of first-order variables. These variables are bound to first-order quantifiers. The statement “the empty set exists” logically means that $(\exists x)(x = \{\})$. Here the x and the \exists are both first-order. Since membership is not a particular, it is not the value of a first-order variable. Membership is the value of a second-order variable. The axioms of class theory are written as $(\exists M)(\dots M \dots)$ where M is membership.

Membership has second-order existence. But second-order existence is deeper than first-order existence. The membership relation is the ground of the particular beings, in the sense that it is the relational power from which those beings emerge. It is the relational power from which all classes emerge. Granted this way of distinguishing between the particular and the universal, it is now possible to clarify the passage from first-order to second-order ontic awareness. During first-order awareness, you are conscious of parts of the All; you are aware of classes bound into structures via the membership relation. At its most extreme, this first-order awareness involves intuitive consciousness of your participation in the ineffable and transcendental All itself. It involves your unmediated awareness of being a member of the All. As this first-order awareness expands, it cannot expand into any greater structure. And so it expands into the pure universality of membership itself. It shifts into the second-order awareness that all things participate in membership. During second-order awareness, you become intuitively aware of the membership relation itself. You become immediately aware that

there exists a single relational power which binds all things together into the wholeness of nature. An ego is a particular thing which is aware of other particulars. As your awareness shifts into second-order awareness, your ego shifts to universal awareness of universal being. This is the transition to ego dissolution. This is the threshold between ontic awareness and ontological awareness.

This third stage in the awareness of being-itself occurs when ontic awareness dissolves into *ontological awareness*. Ontological awareness reveals the deepest meaning of being-itself. Both first- and second-order ontic awarenesses involve the existential quantifier. There exists some ego and there exists some object such that the ego is aware of that object. More formally, (there exists some x)(there exists some y)(the ego x is aware of its object y). And when fully formalized, $(\exists x)(\exists y)$ (the ego x is aware of its object y). The variables x and y are both bound to existential quantifiers. When Quine said that “to be is to be the value of a bound variable”, he was making a statement about what it means to be. He was not making a statement about beings; he was making a statement about the meaning of being. If Quine is right, then the existential quantifier refers to being-itself. Just as the existential quantifier gives existence to the values of its variables, so being-itself gives existence to all the beings among beings. It gives existence both to the membership relation and to all the classes.

Dissolution occurs when the variables x and y merge with their quantifiers; but as the variables merge with the quantifiers, the quantifiers themselves merge; so only the single existential quantifier itself remains. Since the variable x merges with its existential quantifier, the ego dissolves into its own existence. Likewise for its object. And these two beings dissolve into being-itself. During ontological awareness, an egoless brain directly intuits only the meaning of the existential quantifier, and thereby directly experiences being-itself. The brain intends only being-itself. This is the ontological awareness that a brain without an ego has of a world without any object. Nevertheless, during ego dissolution, mystics do not black out or lose consciousness. They remain intensely aware. The brain is in a neural state which encodes only the meaning of the existential quantifier itself. More psychologically, the brain *awares*.

Tillich (1951) said that being-itself is God. But our Pythagoreanism rejects that identification. As the referent of the existential quantifier, being-itself is a purely logical entity. As such, it is neither a person nor personal. It is not any maximally perfect being or supreme being. It is not an object of any theistic practices like worship or prayer. Being-itself is more accurately identified with the Plotinian One. The One is utterly beyond all the categories of existence. It is beyond divinity.

6. Atheistic Mysticism and the Good

The fifth theme of atheistic mysticism asserts that the connections in the network of beings are valuable. Since larger wholes contain more connections, they are more valuable. Hence the All is maximally valuable. The extremity of the All indicates that its value is absolutely infinite. All value here is positive: it is the intrinsic value that beings have by virtue of their interconnectedness. Absolutely infinite value is often thought of as holiness. Smith (1988) has proposed an atheistic conception of holiness as absolutely maximal value. It is traditional since Plato to refer to this holiness as *the Good* (*Republic*,

509b-c). Perhaps the earliest recorded reference to a mystical experience occurs when Socrates describes the vision of the Good (*Republic*, 516b). This vision is the climax of the ascent out of the cave and the ascent up the divided line. At this climax, the mystic sees the sun in its own place – it sees the Good. So what is the Good?

Ancient Platonists like Plotinus identified the Good with the One. So, if the One is being-itself, then the Good is being-itself. However, the Good and the One play two very different roles in Platonic metaphysics. Even Plotinus describes them in very different ways. Plotinus often describes the One as a root of the great world tree of beings; but the Good is the sun towards which that great tree rises. The One is the *arche* or beginning of existence while the Good is the *telos* or the end. It is more accurate to say that being-itself is not the Good but is for the Good; being-itself is for the best. Being-itself points towards that which has the most extreme value as a growing tree points from the ground towards the sun. Being-itself unfolds in a way that maximizes value.

Theists have traditionally portrayed the Good as God. But the pagan Platonists originally portrayed the Good as transcending any deity. More recently, the atheistic philosopher Iris Murdoch has argued for an atheistic conception of the Good (1970, 1992). Her vision of the Good is not articulated using logical or mathematical categories. So how can we fit the Good into our Pythagoreanism? Besides classes, logicians also talk about propositions. And since the axioms of class theory are propositions, our class-theoretic Pythagoreanism includes propositions too. So the Good is a proposition that regulates the generative activity of being-itself. Being-itself manifests the beings in ways that progressively realize the Good. The One aims at the Good.

To gain clarity about the Good, we can turn to the optimalism of Nicholas Rescher. Although Rescher is a theist, he is explicit that his optimalism is not theistic (2000: secs. V & VI). According to Rescher, the *law of optimality* (just *Optimality* here) is the proposition that “whatever possibility is for the best is *ipso facto* the possibility that is actualized” (2000: 815; 2000: 814-821; 1984: ch. 2). But what are these possibilities? These possibilities are usually defined by laws. We can learn about them by looking at the laws that philosophers have thought were somehow maximally valuable. The golden rule and the categorical imperative are said to express the highest moral truths. But these are laws about laws. So Optimality is a law about laws. Thus Optimality becomes: whatever law is for the best is *ipso facto* the law that obtains; it is the law that works. More precisely, say a law that is for the best is *axiologically required*. Thus Optimality states that for every proposition P, if P is axiologically required, then P. Rescher points out (2000: 814-16) that Optimality is self-certifying: it is for the best that Optimality obtains; therefore, by Optimality, it obtains. Still, it is not self-proving.

Atheistic mysticism includes an argument for Optimality. It involves two key premises. The first premise is *Maximality*. It states that Optimality is the best of all possible laws. This seems analytically true. By asserting the truth of *all and only* the axiological requirements, Optimality can justifiably claim maximality. The second premise is the *Principle of the Superiority of Truth*. It states that any true principle is better than any false principle. Truth and falsity are values; but truth is better than falsity. Moreover, the Superiority of Truth looks analytically true. After all, any effort to refute it will have to rely on valid reasoning from true premises.

The argument for Optimality now runs like this: (1) Optimality is the best of all possible principles. (2) Any true principle is better than any false principle. (3) There are

some true principles. (4) Assume for *reductio* that Optimality is false; if it is false, then some principles are better than Optimality; but then Optimality is not the best of all possible principles; and that is a contradiction. (5) Therefore, Optimality is not false; (6) by the law of the excluded middle, Optimality is true. That is, for any proposition P, if it is axiologically required that P, then it is true that P.

To say that the One is for the best means that the One aims at the Good. The One aims to fulfill the truth of the Good. The Good is that finality towards which being-itself unfolds. And being-itself unfolds towards the Good by generating progressively better systems of beings. As the One generates these ever-better systems, more and more axiologically required propositions are true. And the One generates these systems by making their axioms true. The One generates a series of class theories. Each later theory is richer than its previous theory. The zeroth class theory generates no classes. It contains only the purely logical axioms of class theory (like extension and foundation). The first class theory adds the axiom for the empty class. The second class theory adds finite combinatorial principles and so generates the hierarchy of hereditarily finite sets. The third class theory adds the earliest infinitary axioms (infinity, replacement, and choice). Later class theories add progressively stronger large cardinal axioms.

Besides axioms for classes, the One entruths those axioms that generate the best of all possible systems of physical things. The iterative hierarchy of classes contains many structures which abstract physical universes (e.g. space-times, force-fields, systems of particles, etc.). Now let a world be any class of abstract universes. A world is concrete if and only if every universe in that world is concrete. Exactly one world is concrete. By aiming at the Good, the One concretizes exactly the best of all possible worlds. This world almost certainly contains infinitely many progressions of ever better universes.

7. Conclusion

This study of atheistic mysticism began with eleven detailed cases. All eleven cases were motivated by ordinary perception of nature. All eleven subjects come from professions devoted to truth-telling, and were trained in telling the truth. All eleven subjects sincerely present their experiences as providing them with truthful information about nature. Hence these experiences resemble scientific experiences of nature in epistemically significant ways. Although these resemblances do not entail that the experiences are truthful, they do entail that they provide *some* evidence which justifies beliefs about nature. Thus any beliefs which are derived from those experiences by plausible inference are empirically justified beliefs about nature. Of course, an obvious limitation of this study is its small sample size. From this small sample, it is difficult to generalize. Perhaps the next eleven cases of atheistic mysticism will reveal an entirely different set of thematic beliefs about nature (e.g. that nature has no structure, no wholeness, and so on). Hopefully future studies will have larger datasets.

This study proceeded to interpret the content of these eleven cases. The shared themes of these cases motivated a structuralist interpretation of atheistic mysticism. The qualitative nature of this interpretation means that it must be regarded skeptically. The structuralist interpretation may have internal biases. Perhaps another interpreter would argue that a different system of themes emerges from the eleven cases. Nevertheless, the

structuralist interpretation provided here has some plausibility. This interpretation yields beliefs about nature which have some empirical justification. More precisely, atheistic mysticism empirically justifies the belief that nature is a network of beings generated by the purely relational power of being-itself. No claim is made here about the strength of this justification. Future studies of atheistic mysticism may focus on strength.

It is widely thought that scientific naturalism includes all and only those beliefs about nature which are empirically justified. It has been argued here that the structuralist interpretation of atheistic mysticism does have some empirical justification. If that is right, then scientific naturalism includes the structuralist interpretation of atheistic mysticism. Consequently, if this study is correct, then scientific naturalism includes the thesis that nature is a network of beings generated by the purely relational power of being-itself. Even if this thesis is weakly justified, it deserves further exploration.

Notes

ⁱThe first excluded case concerns Richard Jeffries (1901). His language is poetic rather than clearly descriptive. The second case is Albert Camus. In his “Return to Tipasa” (1991), he describes an apparently atheistic mystical experience. But he says too little about it to include it. The third case involves Sartre. Gellman (2009) argues that he had a mystical experience of the absence of God; but Kirkpatrick (2013) argues that Gellman has misread Sartre. It will be prudent to wait for them to clarify this disagreement. The fourth case involves Harris (2014). It is not clear whether his meditative experiences should be called mystical. The fifth case involves Wittgenstein. He apparently had mystical experiences (McGuinness, 1966). He seems to be a quasi-atheist. The sixth case involves Ehrenreich (2014). Although her experiences were atheistic, she seems willing to abandon naturalism to interpret them.

ⁱⁱExtremity is expressed by all but Goodenough. Structural insight (including order, pattern, beauty) is gained by Nietzsche, Dewey, McTaggart, Koestler, Hadot, Goodenough, Dawkins, the Ravers, and Lightman. Wholeness is expressed by Nietzsche, Dewey, McTaggart, Hadot, Comte-Sponville, the ravers, and Lightman. Valuable connection is expressed by McTaggart, Russell, Goodenough, the ravers, and Lightman. Dissolution by Koestler, Hadot, Comte-Sponville, the Ravers, and Lightman.

ⁱⁱⁱSuppose the physical thing P supervenes on the mathematical structure S. The structure S is some connect-the-dots network in which the dots are classes and the connections are membership arrows. The physical thing P is also a connect-the-dots network. Its dots are just the dots in S. But its connections are *physical participation* arrows. If x in S is a member of y in S, then x in P physically participates in y in P. Hence the physical thing P consists of the dots of S tied together by the physical participation relation.

^{iv}The extension of the membership relation cannot be any set. For every set is a member of some other set. The extension of the membership relation cannot be any proper class. For if there were such a class M, then it would include all pairs (x, y) such that x is a member of y . But the fact that some (x, y) is a member of M means that $((x, y), M)$ is a member of M. But that is impossible. Membership has no extension.

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