

At the Edge of Eternity's Shadows: Scaling the Fractal Continuum from Lower into Higher Space

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ABSTRACT: In this paper, I elaborate the hyperspatial implications of the fractal-scaling scheme that I introduced previously. Four case examples where out-of-body experiencers reported heightened and amplified visual capacities are correlated with this explanatory model. Three of these cases are identified as including an additional hyperspace signifier, the reported capacity to see through solid and opaque physical obstructions. One of these cases included yet another hyperspace signifier, the reported capacity to pass through such obstructions. Additional evidence supportive of this thesis is drawn from the literature on ecstatic experience, including out-of-body, near-death, and other varieties of mystical or visionary experience, and from that on psychedelic experience. Yet other hyperspace signifiers reported by ecstatic voyagers are also considered, including sensations of seeing outward spherically in 360 degrees and of seeing on all sides of three-dimensional solids simultaneously.

KEY WORDS: near-death experience; out-of-body experience; dimension; time; hyperdimensional; hyperspatial; perspective; fractal scaling; the higher self.

In a previous paper (Greene, 1999), I advanced a wide-ranging explanation for out-of-body experiences (OBEs) grounded inside a more general hyperspace theory of the paranormal. I introduced the notion that a fractal continuum exists between our three-dimensional realm of sensory awareness and a four-dimensional realm of hypersensory awareness, connecting but at the same time separating these two whole integer reality domains. I demonstrated how this particular rendering of hyperspace theory could be utilized to illuminate the various forms

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of embodiment (and states of disembodiment) associated with OBEs, near-death experiences (NDEs) and other varieties of mystical or visionary experience. I also pointed out how this theoretical approach could make sense of reported paranormal accompaniments to such ecstatic experiences. In the present paper, I expand upon a number of themes implicitly included in that earlier work, to further underscore hyperspace theory's enormous explanatory power.

As a prelude to this expansion, let us first review how I previously used the *fractal-scaling* scheme, as part of my effort to lay a foundation to understand ecstasy's experiential structures. In that earlier paper, I observed that the coastline of England, viewed by human eyes from several thousand miles above, possesses the geometrical properties of a simple curve or one-dimensional line. I then wondered what would happen if this coastline were examined from this height with a camera capable of clarifying this view. With each increase in the camera's resolution, that coastline's curves would become more complex, detailed, and irregular in shape. Using fractal geometry, I noted, it is logically feasible and mathematically correct to assign sufficiently complex curves a fractal value of more than one dimension. For instance, a coastline examined under sufficient resolution could take on a fractal value of 1.26 dimensions or 1.38 dimensions. Benoit Mandelbrot (1977), the discoverer of fractals, listed the precise rules whereby a complex line's fractal value can be ascertained.

But what happens when we continue this fractal-scaling scheme with a line to its logical conclusion? Eventually, that line will spread out completely into the plane and lose all pretenses to being linear. In other words, at a very minute scale, this line will assume the whole integer value of the plane, that is, the higher space that had been embedding it. Fractal scaling works not only when expanding up from one into two dimensions, but also when expanding up from two into three. And the same rules that determine the fractal value of a complex line determine the corresponding value of a complex surface. James Gleick (1987) offered one illustration of how fractal scaling bridges two and three dimensions. He invited readers to think

about a classic geological formation, a talus [boulder filled] slope on a mountainside. From a distance it is a Euclidean shape, dimension two. As a geologist approaches though, he finds himself walking not so much on it as in it—the talus has resolved itself into boulders the size of cars. Its effective dimension has become about 2.7, because the rock surfaces hook over and wrap around and nearly fill three-dimensional space like the surface of a sponge. (p. 106)

We might add that if we continued to examine these boulders as parts of a complex surface even more closely, in its total shape this fractal surface would continue to become even more three-dimensional.

But does the usefulness of fractal scaling cease when we reach three dimensions? Or might this scheme be found to be useful when conceptualizing an expansion up from three into four dimensions? Mandelbrot did not seriously entertain such a prospect in his book. However, aspects of fractal or fractional geometry have been incorporated into the theoretical musings of a number of researchers interested in a hyperspatial analysis of human nature and the cosmos. Parapsychologists, consciousness researchers, and scholars studying UFOs and alien abductions have all proposed or intimated the possible existence of a fractal continuum existing between our three-dimensional world and a higher four-dimensional world (Greene, 1999; McLaughlin, 1977, 1986; Rosen, 1994; Valle, 1991). Yet other researchers have advanced alternative or more general hyperspatial (and conceptually related multispatial) models of human nature (Audain, 1999; Comfort, 1984; McKenna, 1992; Millay, 1999; Murphy, 1992; Poynton, 1994, 2001; Rauscher and Targ, 2001; Ring and Valarino, 1998; Smythies, 1994, 2000; White and Krippner, 1977; Whiteman, 1961, 1967, 1986). In the present paper, I identify an additional range of evidence that is compatible with the fractal-scaling scheme and with the related notion that human beings possess not only a three- but also a four-dimensional capacity to perceive space. In this regard, it will become evident that the postulated form of transcendental awareness recently proposed by Kenneth Ring and Sharon Cooper (1999) is a subset to a more general capacity to perceive space in more than three dimensions.

Although he did not speak specifically of fractal scaling, Paul Davies (1992) has speculated on how our three-dimensional space may expand into a four-dimensional space. And the continuity linking his views and to those found in fractal geometry is startling. Davies wrote:

The ability of quantum fluctuations to “fuzz out” the physical world on an ultramicroscopic scale leads to a fascinating prediction concerning the nature of space-time. Physicists can observe quantum fluctuations in the laboratory down to distances of about 10^{-16} th cm and over times of about 10^{-26} th sec. These fluctuations affect such things as the positions and momenta of particles, and they take place within an apparently fixed space-time background. On the much smaller Planck scale [10^{-33} rd cm and 10^{-43} rd sec], however, the fluctuations would also affect space-time itself. (1992, p. 62)

Davies went on to note that:

The theory of relativity requires that we view three-dimensional space and one-dimensional time as parts of a unified four-dimensional space-time. In spite of the unification, space remains physically distinct from time. We have no difficulty in distinguishing them in daily life. This distinction can become blurred, however, by quantum fluctuations. At the Planck scale the separate identities of space and time can be smeared out. (1992, pp. 62–63)

Davies then observed that “the most probable structure of space-time under some circumstances is actually four-dimensional space” (1992, p. 63). When we reach the Planck scale, he speculated: “Time begins to ‘turn into’ space” (1992, p. 63).

According to Davies, when the physical universe is examined at a sufficiently minute scale, that is, at the Planck length, its texture is revealed to be too complex to fit inside three-dimensional space. Rather, four spatial dimensions are required to make sense of all that happens at this cosmic level. In other words, aspects of the cosmos that we register in temporal terms manifest spatial qualities in this expanded reality domain. What, however, did Davies write about possible corresponding expansions in human consciousness moving up from three into four dimensions? Actually, he wrote nothing. As a scientist turned popular science writer, he concentrated on examining the physical implications of the ideas he was exploring. But the views he espoused, I would wager, are eminently compatible with, even corollaries of, the following conjectures.

Fractal Amplifications in Awareness and the Awakening of the Higher Self

Human awareness, in this view, is not confined exclusively to the three-dimensional world. And human beings possess more than just three-dimensional bodies. Each one also possesses a spatiotemporalized four-dimensional body existing in a four-dimensional space, the fourth dimension being outside of and at right angles to our three-dimensional space. I have discussed the rationale for positing the existence of this higher body elsewhere (Greene, 1981, Greene and Krippner, 1990, Greene, 1999). We might say that, during ordinary waking consciousness, the higher self occupying this hyperphysical organism is asleep and dreaming. Using a different metaphor, we could say that the higher self resides in a pre-birth condition waiting to be born into hyperspace.

But what is the content of this dream experience or, alternately, this fetal life? It is *the life of which we are conscious* in physical reality!

When a person's higher self begins to awaken or to be born into hyperspace, however, his or her view of reality begins to change dramatically. That person's three-dimensionally conditioned consciousness begins to *amplify*, as the reality slice he or she occupies begins to expand up into (and perhaps passes entirely through) this fractional continuum. Markedly greater powers of internal and external awareness are activated during this process of spatiotemporalization. The inhabited organism and the surrounding environment come under increasingly greater scrutiny from the awakening higher self. The four-dimensional self begins to feel, and otherwise sense, the operation of energies within this dream body. Awareness stretches down to encompass energetic activities occurring at the cellular, the molecular, the atomic, and then the subatomic level. This increased awareness of internal bodily energies, we can speculate, is to be associated with the activation of what has come to be called *kundalini* energy.

Any number of OBE reports, and other evidence gathered by parapsychologists and consciousness researchers, dovetail neatly into this fractal-scaling scheme. The following descriptions of the OBE environment clearly illustrate this relationship, as does the related material that follows. The first case comes from Ernesto Bozzano (1938). The account is that of his friend Giuseppe Costa, who remembered the experience from boyhood. One night after studying for an examination, Costa forgot to put out his lamp before falling asleep. While slumbering, he accidentally knocked over this lamp and woke up to the smell of heavy smoke in his room. As recounted by Herbert Greenhouse (1975):

Suddenly he found himself in the middle of the room, yet his physical body still lay on the bed, still asleep. He now saw the room with much keener sight than with his physical eyes, "as though a physical radiation penetrated the molecules of the objects." He could see into the interior of his own body with "its cluster of veins and nerves vibrating like a swarm of luminous living atoms."

He felt "free, light, and ethereal." When he tried to open the window of the smoke-filled room, however, he was unable to do so. He could see through the wall into the next room where his mother lay sleeping. Her body gave off "a luminosity, a radiant phosphorescence." He watched her hurriedly get out of bed, run out of her room into the hall, and rush into his room and over to his bed, where she shook his physical body. At that moment he woke up with "parched throat, throbbing temples, and difficult breathing." (p. 42)

But how was Costa apparently able to *see* into the interiors of his own body and also through his bedroom wall into the adjoining room? And why was he unable to open the window while existing within this astral state? I offer higher space explanations to clear up each of these mysteries in the following section.

The next case is from Joseph McMoneagle (1993), who described the visual acuity he experiences during OBEs:

Both animate as well as inanimate elements are seen with such pristine clarity that you can actually discriminate molecular moment within them. For example, looking at a table is like looking at an energy field in the shape of a table, with billions of component parts or elements contained within the energy field moving or interacting with each other. (p. 127)

A third example comes from Dianne Morrissey (1996). In 1978 she was accidentally electrocuted in her own home and hovered between life and death for the next 35 minutes. Upon recovering, she found that the experience had transformed her life. As a result, she went back to school and obtained a doctorate in psychology and is now an active researcher in the field of near-death studies. During the period of her electrocution, she apparently floated up out of her body and then seemed to pass through a dark tunnel that opened up into a heavenly realm. For our purposes, let us focus on the initial portion of her journey, as she appeared to look down from ceiling height onto the scene she was leaving behind. She wrote:

Everything still looked the same—the furnishings, the walls—but there was a new dimension to the scene—it had become transparent. I could see everything more clearly than before, and like a scientist, I found myself looking at life through a microscope, discovering minuscule particles of matter normally invisible. (p. 23)

A similarly fascinating case was recounted by Kimberly Clark Sharp (1995). Joan Berryman reported that during an apparent NDE-related excursion out of her body she experienced the vivid sense of passing through a wall. During the experience, she found herself focusing her attention upon a hand. Later, she could not remember if it was her own hand. However, she reported that “she saw the skin and muscles and bones simultaneously—saw all of it, even though an X-ray machine could not” (Sharp, 1995, p. 139). She went on to say:

Surfaces did not block my ability to “see.” I was aware of the blood moving through the veins and also aware of the cells that made up the blood as well as the molecules that made up the cells. The limitation

of my senses was lifted. I could perceive reality as we know it exists, but cannot normally see it. (Sharp, 1995, p. 139)

Interestingly, while comparing elements in an NDE she had personally experienced with those in the above account, Sharp came to the following realization:

Joan had hit upon something . . . that I knew was true, but found difficult to explain. When I experienced the gray, foggy place during my near-death experience, I knew I was in a place that existed in the real world, though I couldn't recognize it at the time. I think that's because the fog consisted of subatomic particles—a soup of matter that forms the basis of the physical world—which cannot be seen without an electron microscope. The fog was light and dark, energy radiated and absorbed, the yin and yang of quantum physics. (1995, p. 139)

Thus, Sharp adopted a view of NDEs that is strikingly similar to that provided by my theory's fractal scaling scheme.

All four of the above experiencers described what appears to be a heightening in, or amplification of, their perceptual faculties during OBEs. And Sharp's speculation about her own experience provides us with additional material to ponder in this same vein. Yet another NDE survivor reported what seems to be a similar heightened visual-perceptual capacity. P. M. H. Atwater (1989) wrote that, several days after surviving an NDE, she found herself "able to see with seemingly X-ray vision each individual cell and groups of cells deep inside myself" (p. 40). We may suppose that the fractionally dimensioned senses of each of these subjects provided them with a hyperacute awareness of their physical world surroundings. Also compatible with this understanding are reports of enhanced visual acuity during OBEs from Ingo Swann. He reportedly sees "the forms of certain light rays, ionization of the air around changing light sources and reflections off shiny surfaces" during his OBEs (Mitchell, 1978, p. 158). Discussing this same perceptual effect, Celia Green (1968) noted that OBE subjects "sometimes report that their sensory acuity is increased in the ecsomatic [out-of-body] state, saying that their senses were 'heightened or enhanced'" (p. 72). Similarly, Russell Noyes, (1979), reporting on his study of NDEs, noted that "Many claimed heightened perception together with increased acuity of vision and hearing" (p. 75). Ring's findings were also comparable. He observed that many of his NDE subjects reported "very acute hearing and sharp but detached mental processes" (1984, p. 32). Ring went on to note that "visually, the environment was often described as very brightly illuminated" (p. 32).

Yet other researchers working in other areas of consciousness research have reported related findings. The world's leading authority on the phenomenology of lysergic acid diethylamide (LSD), Stanislov Grof, has come to believe that psychedelics have the capacity to amplify human consciousness. He considered a particular class of experience in which:

LSD subjects have stated that they experienced themselves as neurons in their own brains, white and red corpuscles, uterine epithelium, or germinal cells. The commonly reported experience of identification with the ovum and sperm at the time of conception belongs to this category. Another interesting phenomenon is the conscious exploration of the cellular nucleus and the genes in the chromosomes; this can be combined with the feeling of "reading one's DNA code." . . . [E]pisodes of organ, tissue and cellular consciousness can be associated with many concrete insights; various details concerning anatomy, histology, physiology and chemistry of the body found in the accounts of such experiencers often reveal a level of information the subjects did not have before the sessions. Some of the phenomena in this category bare a close resemblance to scenes in the movie *Fantastic Voyage*; references to this film are frequently found in the descriptions of such LSD experiences. (1975, p. 191)

More recently, Grof (2000) has charted such amplifications in awareness under the heading of "Experiential Explorations of the Microworld." In Grof's cartography of consciousness states, he listed this particular class of transpersonal experiences in the following order: (1) "Organ and Tissue Consciousness," (2) "Cellular Consciousness," (3) "Experiences of the DNA," and (4) "Experiences of the World of Atoms and Subatomic Particles" (2000, p. 58).

In Grof's taxonomy, the category of transpersonal experiences that directly follows the above listing is entitled "Experiential Extensions Beyond Space-Time and Consensus Reality." Judged from within the context of the present fractal-scaling scheme, Grof's arrangement of transpersonal experience categories is neither coincidental nor arbitrary. Rather, this arrangement is compatible with the notion of a fractal continuum allowing human awareness to expand both downward into the infinitesimal reaches of the physical universe and upward out of a three- and into a four-dimensional view of the cosmos.

In his seminal investigation on the effects of dimethyltryptamine (DMT) on human consciousness, Rick Strassman (2001) reported findings similar to those of Grof. In particular, he observed: "At the most basic biological level was the perception of DNA and other biological components" (p. 177). One of Strassman's subjects reported:

The visuals were dropping back into tubes, like protozoa, like the inside of a cell, seeing the DNA twirling and spiraling. They looked gelatin-like, like tubes, inside which were cellular activities. It was like a microscopic view of them. (p. 177)

Here we should observe that seeming amplifications in consciousness experienced by those undergoing OBEs and NDEs are not necessarily identical to the psychedelic or *mind-expanding* experiences recounted by Grof's and Strassman's subjects.

Those who imbibed powerful hallucinogens sometimes reported not only that their consciousness was amplified to the point where they could actually see and explore themselves at the cellular level; during psychedelic intoxication, subjects typically experienced the vivid sense of actually *living* at the cellular level. The OBE subjects whose accounts I have quoted above did not report such sensations. To make sense of these distinctions, we can use an *interstate highway* metaphor popularized by Robert Monroe (1985). It is almost as if both sets of subjects, that is, the OBEs quoted above and Grof's subjects (and perhaps Strassman's), were traveling down the same interstate to consciousness expansion, and then their itineraries diverged. Hallucinogenic subjects reached a particular destination and got off this highway to mix with the locals. These OBEs, on the other hand, may be said to have passed along to a farther destination, or returned to their home locales without getting off this highway.

In any event, apparent amplifications in visual acuity are not the sole commonalities linking OBEs to LSD experiences. Under the influence of LSD, or other powerful hallucinogens like DMT, subjects occasionally report undergoing the entire spectrum of altered consciousness states associated with ecstatic and mystical experiences (Masters and Houston, 1966; Tart, 1969; Grof and Bennett, 1990).

Also relevant to this line of speculation is Dean Radin's (1997) provocative suggestion that "clairvoyance is normally thought of as the ability to perceive across vast distances. . . . But it is equally possible that clairvoyance can allow us to see across infinitesimally *tiny* distances" (p. 292). In support of this view, Stephan Phillips (1995) provided evidence that a century ago two Theosophists used clairvoyance to perceive subatomic particles. As Radin noted:

Their descriptions didn't make sense at the time, or for many decades afterward. But now, their descriptions bear a remarkable resemblance to the quark model of particle physics and to superstring theory. (1997, p. 292)

Superstrings, we should note, are conceived to exist in a space of at least 10 dimensions that is thought to be located somewhere beneath the Planck length.

Expanded Spatial Perspectives

In this paper, I have offered four examples (and much supporting background evidence) in which the experiential structure of OBEs may be seen to be compatible with this theory's fractal scaling scheme. In each of these cases, we see what may be construed to be evidence of consciousness amplifying, and of experiencers passing through, a fractal continuum on their way out of three and into four dimensions. And in three of these cases, we find what I would argue to be additional hyperspace signifiers. In other words, the forms of perception (and in one case movement) that are reported make no sense inside the context of our three-dimensional view of reality. They do, however, make eminent sense if the experiencers were beginning to operate with an at least partially awakened four-dimensional space sense. And when all of this evidence is examined in light of additional experientially related cases also considered in this paper, and with yet other characteristic features of ecstatic experiences not yet entertained, the hyperspace implications become all the more profound.

In the first case quoted, Costa described an apparent ability to see through solid physical obstructions during his life threatening OBE. Similarly, Morrissey reported that her physical world surroundings became transparent, when viewed from an out-of-body perspective. And Berryman reported not only that she could see into the interiors of a human hand but also that she seemed to pass through a wall during her NDE. And other experiencers we have quoted, such as Sharp and Atwater, reported very similar perceptual effects. The forms of perception and penetration reportedly experienced by these subjects defy rational explanation when examined within the context of our contemporary materialistic worldview. However, a hyperspatial conception of human nature does begin to illuminate these reports and makes sense of numerous other descriptions of anomalous perceptual capacities reportedly experienced by ecstatic voyagers.

To begin to appreciate why, let us imagine what life would be like for a sentient being confined to a two-dimensional universe who is then elevated up into a three-dimensional view of reality. Guided by the *laws of geometrical progression*, we will then extrapolate our findings

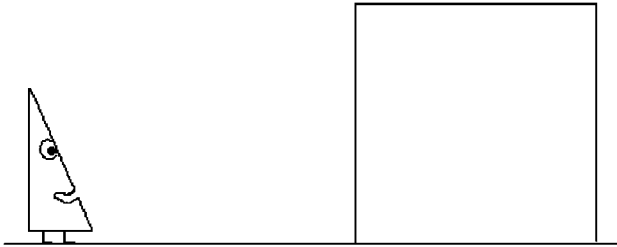


Figure 1.

up from three into four dimensions. In the above scene, we see the representation of a sentient two-dimensional being confined to a realm we will call Flatland, in honor of Edwin Abbott's (1884) hyperspace classic.

In Flatland, spatial relationships holding true in three dimensions are reduced to equivalent relationships holding true in two dimensions. For example, a closed figure in Flatland corresponds to a solid body in three dimensions. And a linear subsection of such a closed figure corresponds to the surface subsection of a three-dimensional body. Similarly, two-dimensional beings perceive line segments in a way that corresponds to how we perceive surfaces. And just as the surface of a brick wall in our world blocks our view of what is on the other side, so in this lower realm a line segment would do the same thing. In the above scene, then, this Flatland being cannot see through the linear obstruction to his front into the interiors of this two-dimensional building.

Now, what would happen if this Flatland inhabitant were somehow lifted up out of the plane while being able to look back on this two-dimensional scene from without? From this extradimensional vantage point, this being would be able to see *over* what had previously been an obstruction into the interiors of this building. And if this being were then to pass over this obstruction and drop down into these interiors, he would have accomplished a form of transport that would be impossible if movement were limited exclusively to this two-dimensional realm. For a Flatland being totally lacking in any awareness of the possibility of movement in a higher direction of space, passage into the interior of this closed structure would be a miraculous event. One piece of solid two-dimensional matter, the body of our higher space traveler, would apparently have passed right through that of another, the wall of this two-dimensional structure.

We also notice that, from this extradimensional location, our higher space voyager has access to a view of the lower-dimensional figures before him on *all sides at once*. For example, he can now see the top, the bottom, and both sides of the building in this scene simultaneously. However, before his ascent he could only see the one side of this building directly facing him. And while looking back on Flatland from without, if this being were to lock the focus of his attention on any particular point or location in this scene, his peripheral awareness would extend outward along a circular path arcing in 360 degrees. However, before his ascent he could only look in one direction at a time, with his visual field limited to no more than a 180 degree view of any scene before him. Now what do these last two observations have to do with ecstatic experiences? To begin to understand, we need to shift our focus up from the hypothetical case of looking down from three into two dimensions to its higher dimensional analog. In other words, we have to imagine the hypothetical case of looking back from four into three dimensions, guided by the laws of geometrical progression.

The capacity to see over lines becomes a capacity to see over three-dimensional solids. The capacity to see on all sides of two-dimensional figures at once becomes a capacity to see on all sides of solid objects at once. And finally, the capacity to see outward along a circular arc extending in 360 degrees becomes a capacity to see outward along a *spherical* arc extending in 360 degrees. But what, then, does all of this have to do with ecstatic experiences? Not infrequently, ecstatic voyagers report sensations of seeing and passing through solid physical obstructions during their ecstatic sojourns, as has been illustrated by certain of the cases quoted above. However, also somewhat common are reports of spherical vision, that is, of being able to see outward spherically in all directions at once along a 360 degree arc. And a few ecstatic voyagers have reported the sense of seeing three-dimensional solids on all sides at once. Ecstatic voyager reports of each of these experiential effects are offered in Robert Brumblay's (2003) paper, also included in this issue of the journal. Such reports also figured into Ring and Cooper's (1999) conceptualization of "mindsight" evidently experienced by the blind during NDEs and OBEs. As noted on the back cover of their book, this postulated form of perception involves "the strange experience of being able to perceive from all angles at once, from every focal depth at once."

However, there is at least one major conceptual problem that must be resolved in order to reconcile all of the above evidence and conjecture into a hyperspatial framework. Our hyperspace analogy only holds true when

we assume that those reporting these experiential effects are actually looking back at our world from an extradimensional perspective. Unfortunately, this does not seem to be reported in the majority of cases. Most ecstatic voyagers have reported the vivid sense that they were *outside* of their physical body but still *inside* three-dimensional space when they sensed themselves to be seeing and passing through walls and ceilings, or sensed themselves to be seeing outward spherically in 360 degrees. Where an ecstatic voyager might have been located while reportedly seeing three-dimensional solids on all sides at once is another question. There may be too few cases on record for us to establish a general *reported location* rule for this experiential effect. How do we resolve these curious discrepancies?

As originally posited elsewhere (Greene, 1999), we simply assume that these voyagers are mistaken about their whereabouts. This assumption also makes sense of parapsychologists' failure to capture physical evidence of astral bodies in the laboratory during OBE experiments conducted throughout the 1970s (Alvarado, 1982; Blackmore, 1982; Irwin, 1985). Although ecstatic voyagers think they are still inside three-dimensional space separate from their physical bodies, they really are not. They are looking back at our world from a four-dimensional location, but cannot see the *depth* in this higher dimension. This leads them unconsciously to subtract the distance they have traveled in this *invisible direction* and mistakenly believe themselves to be located in the scene they are actually viewing from without. I worked out the details of this interpretation elsewhere (Greene, 1999).

Just as Plato's underground slaves confused their actual identities and locations with that of their shadowy cave wall reflections, so these voyagers are making what is essentially the same mistake—one dimension removed upward! Just as babies in our world must develop depth perception through experience, a similar four-dimensional challenge occupies ecstatic voyagers during the initial stages of their ecstatic journeys. This interpretation also allows us to make sense of Costa's inability to open the window to his bedroom during his OBE. While in this condition, he was actually further away from this window than he realized, separated from it by a *depth dimension* of space he had yet to learn how to perceive.

Adopting this assumption allows us to make sense of other similar reports found predominantly in the near-death literature. Somewhat frequently, during the scene of their accident, or while undergoing an emergency room operation, NDErs have reported a curious sensation. They have stated that they experienced the vivid sense that a rescue

worker or a doctor or a nurse had passed right through their astral body to attend to their life-threatened physical body. Although these voyagers appeared to themselves to be in the scene where their physical body was being resuscitated, they were somehow inexplicably intangible, even though some of them sensed that they occupied some sort of spiritual body or astral form.

How, then, do we explain these effects, that is, that ecstatic voyagers are typically invisible and intangible to living human beings and cannot typically make contact with three-dimensional solids? Once again, these voyagers think that they are down in the scene they are viewing. But they are actually spectators some small distance away from this scene, separated from it by a dimension of space they have yet to learn how to perceive. When they reach out to touch an object or body in the scene before them, they oftentimes end up grasping at air because this scene is actually more distant from them than they realize. When a living human being seems to walk right through them, what is being penetrated is not their actual spiritual body. Rather, what this attendant is walking through is that voyager's *illusory projection* down into a reality level that the voyager's subtle or astral body does not actually occupy. And when ecstatic voyagers seem to see and pass through brick walls and other solid obstructions, they are actually seeing and passing *over* these barriers. They simply misconstrue what is happening due to an inability to perceive depth in the four-dimensional environment they have (partially or incompletely) entered.

The astute critic could challenge this interpretation by noting that such voyagers sometimes do report some form of contact as they try to touch a physical body. One of Raymond Moody's patients attempted to place her "spirit" hand on his shoulder while he was resuscitating her physical body; later she reported that her hand passed right through his arm and that she felt "something that was the consistency of 'very rarefied gelatin' that seemed to have an electric current running through it" (Moody and Perry, 1988, p. 7). If ecstatic voyagers like this woman are not actually out of their bodies, and immediately adjacent to the physical body or object they sense they are contacting, then where are they and what is it that they are contacting? They are contacting an *extradimensional extension* to the physical body they think they are contacting. And this extradimensional extension actually is directly adjacent to them, but in hyperspace, not in the three-dimensional reality slice they are actually viewing from without!

The situation confronting such a voyager may be clarified by returning to Plato's cave allegory. Here we are to imagine once again

a situation in which a group of underground slaves chained next to one another confuse their true identities and locations with that of their cave wall reflections. In the same way that such a slave might actually touch his neighbor, but believe that the action was taking place among the shadowy cave wall reflections before the two of them, so ecstatic voyagers like Moody's subject are making a similar perceptual mistake. This patient, in other words, actually contacted an extradimensional extension to Moody's physical body, while mistakenly thinking that her spirit hand was passing through his physical body. Interestingly, one of the properties of hyperphysical touch between two four-dimensional bodies involves a kind of three-dimensional-like immersion of each of these bodies into that of the other. In a future paper, I will examine a variety of ecstatic voyager reports of astral sex and mystical immersion, as occasions where the hypersurfaces of two four-dimensional bodies have come into hyperphysical contact with one another.

Conclusion

In the present paper, I have offered a fractally dimensioned and hyperspatial analysis of many characteristic features of ecstatic experiences. But why have I complicated this interpretation by positing the existence of a fractal continuum, and the accompanying notion that ecstatic voyagers initially inhabit fractal bodies before they spatiotemporalize more completely, to occupy fully extended four-dimensional space/time bodies? Would the problems confronting us not be easier to understand if we could frame them exclusively in terms of purely three- and four-dimensional spaces and bodies? As I noted elsewhere (Greene, 1999), many of the forms of embodiment recounted by ecstatic voyagers make no sense when we think exclusively in terms of purely three- and four-dimensional bodies. Rather, judged from within the context of this theory, the vast majority of these embodiment forms are clearly identified to be *fractally dimensioned projections from hyperspace*.

We should also observe that many of the seemingly amplified perceptual capacities documented and analyzed in this paper also do not make sense inside the context of such a whole integer theory. They do, however, make eminent sense when viewed as examples where ecstatic voyagers accessed fractally dimensioned sensory/perceptual capacities. Ecstatic voyagers existing within this fractal condition occupy an *in-between* realm that is more than three- but less than four-dimensional. This is the *imaginal realm* of Ring (1990) and other researchers and the

middle realm of Moody (Moody and Perry, 1993). Such voyagers are like amphibians capable of traveling between land and sea. They may, then, transit through the fourth dimension, in fractally dimensioned increments, to visit the past or future. Such voyagers may even bend back some (perhaps fractally dimensioned) portion of their higher dimensional world-line body, and travel along this appendage to penetrate into our three-dimensional world to a lesser or a greater extent. This type of maneuver allows voyagers to engage in such reputedly psychic feats as traveling clairvoyance and remote viewing. When a voyager's fractal body occupies a section of this appendage that has come into minimal contact with a portion of our three-dimensional reality slice, an apparition of the living may result. When the penetration is more substantial, a temporary materialization, or bilocation, may ensue.

But what happens when an ecstatic voyager spatiotemporalizes completely, rather than just partially? As I have argued previously (Greene, 1999), the physical world dreamer merges completely into his or her fully awakened four-dimensional self, and that higher self utterly transcends the three-dimensional world. Those who have attained such a spatiotemporalized condition might even animate this time-body and move within it through hyperphysical realms of heavenly splendor. Paradoxically, during full hyperspatial arousals, the three-dimensional reality slice left behind may evaporate away entirely, relative to the infinitely more substantial fourth dimension. Our world, considered from such a perspective, may become no more real than are the shadows of real things in physical reality. For those who have spatiotemporalized completely, then, there may be nothing left to look back at in the three-dimensional universe. Only during fractally dimensioned expansions in consciousness, when experiencers remain in between worlds, might the physical universe remain real enough to be perceived paranormally, sometimes as if from without.

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